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A HANDBOOK OF SKIN DISEASES AND THEIR TREATMENT


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PITYRIASIS RUBRA PILARIS. THREE YEARS' DURATION

Frontispiece

A HANDBOOK

OF

SKIN DISEASES

AND THEIR TREATMENT

BY

ARTHUR WHITFIELD

M.D. (LOND.), F.R.C.P.

PROFESSOR OF DERMATOLOGY AND PHYSICIAN TO THE SKIN DEPARTMENT, KING'S COLLEGE HOSPITAL;

LATE PHYSICIAN TO THE SKIN DEPARTMENT, GREAT NORTHERN CENTRAL HOSPITAL;

CONSULTING PHYSICIAN FOR DISEASES OF THE SKIN, QUEEN ALEXANDRA MILITARY HOSPITAL;

PRESIDENT OF THE DERMATOLOGICAL SECTION, ROYAL SOCIETY OF MEDICINE

SECOND REVISED EDITION

LONDON

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To

THE MEMORY OF THE LATE

DR. COLCOTT FOX

IN GRATEFUL ACKNOWLEDGMENT OF HIS INVALUABLE

TEACHING AND UNVARYING KINDNESS

THIS BOOK IS DEDICATED BY

THE AUTHOR

PREFACE TO THE SECOND EDITION

Since the publication of the first edition of this book, considerable advances have been made both in dermatology and syphilology, more particularly the latter.

In diseases of the skin, much careful work has been performed in the endeavour to elucidate the actual causes of those eruptions of toxic origin which were formerly dismissed with the vague statement that they were "gouty" or "rheumatic." The theory of focal infection has been introduced, and although it is possible that too much is being claimed for it, I am convinced that the future will show it to be of great importance.

In certain local diseases, such as eczematoid ringworm of the feet and hands, the exact etiology has been worked out by the observations of several observers.

The use of the X rays has been widely extended in some directions, and the work of Adamson and Kienbock has rendered the treatment of ringworm of the scalp far more certain and satisfactory, though it is still an operation demanding considerable skill and the closest possible attention, if accidents are to be avoided.

I have entirely rewritten the section of the general treatment of the skin, in view of the importance of the newer methods. The inoculation treatment of Wright, which was in its infancy when the first edition was published, has passed through the usual stages—namely, first of undue laudation, then underestimation, and now may be said to have found a permanent place, though its value is still the subject of dispute.

The introduction of the Wassermann reaction and the arsenobenzol compounds has seriously modified our treatment of syphilis, and the former has certainly placed in our hands an additional instrument for our guidance. The methods of using these are still the subjects of discussion, and that detailed in this book is the outcome of large experience

and the advice of expert toxicologists. Especially would I acknowledge my indebtedness to the work of Dr. W. H. Willcox, whose researches into the action and elimination of the arsenobenzol group have not received the attention that they deserve.

Throughout the section on treatment I have endeavoured to give reasons in support of the method of management which I advise.

All this has led to a slight expansion of the book, but it has been my aim, in response to the advice of many friends, to keep it as nearly as possible to the old length.

Numerous new half-tone plates have been added, which I hope will increase the usefulness of the work.

A. W.

Harley Street, W.,
January, 1921.

CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION: ANATOMY—PHYSIOLOGY—CLINICAL EXAMINATION—GENERAL THERAPEUTICS	1
II.	PYOGENIC INFECTIONS OF THE SKIN—THE RESULTS OF SCRATCHING	16
III.	DISEASES DUE TO ANIMAL PARASITES	39
IV.	DISEASES DUE TO VEGETABLE PARASITES OTHER THAN BACTERIA	52
V.	URTICARIA—LICHEN URTICATUS—URTICARIA PIGMENTOSA—PRURIGO	77
VI.	THE ERYTHEMATA	89
VII.	PURPURA	102
VIII.	PEMPHIGUS—DERMATITIS HERPETIFORMIS—EPIDERMOLYSIS BULLOSA—HERPES	107
IX.	SEBORRHŒA—HYPERIDROSIS—ACNE ROSACEA	119
X.	DRUG ERUPTIONS—TRAUMATIC DERMATITIS	134
XI.	ECZEMA—DERMATITIS EXFOLIATIVA	144
XII.	PSORIASIS—PITYRIASIS RUBRA PILARIS—PITYRIASIS ROSEA	172
XIII.	LICHEN PLANUS—LICHEN SPINULOSUS—PARAKERATOSIS VARIEGATA	183
XIV.	TUBERCULOSIS	190
XV.	SYPHILIS	211
XVI.	LEPROSY — YAWS — GLANDERS — ACTINOMYCOSIS — MYCETOMA—BLASTOMYCOSIS—ORIENTAL SORE	237
XVII.	TUMOURS	245
XVIII.	ICHTHYOSIS—LEUCODERMIA—SCLERODERMIA—SCLEREMA	265
XIX.	CERTAIN DISEASES OF THE HAIR	271
XX.	XERODERMIA PIGMENTOSA—DARIER'S DISEASE—ACANTHOSIS NIGRICANS	280
	APPENDIX—ON THE PREPARATION OF SPECIMENS FOR MICROSCOPIC EXAMINATION	283
	INDEX	287

LIST OF ILLUSTRATIONS

PLATE		TO FACE PAGE
1.	PITYRIASIS RUBRA PILARIS	*frontispiece*
2.	IMPETIGO CONTAGIOSA	17
3.	TINEA CIRCINATA	53
4.	KERION	57
5.	ENDOTHRIX RINGWORM IN THE HAIR	59
	MICROSPORON RINGWORM IN THE HAIR	59
6.	ECTOTHRIX RINGWORM IN THE HAIR	60
7.	RINGWORM OF THE NAILS	61
8.	FAVUS IN THE HAIR	62
	ENDOTHRIX RINGWORM IN THE NAIL	62
9.	PITYRIASIS VERSICOLOR	71
10.	MICROSPORON FURFUR	72
	MICROSPORON MINUTISSIMUM	72
11.	MICROBACILLI FROM COMEDO	74
	BOTTLE BACILLI IN SCALE	74
12.	HEBRA'S PRURIGO	87
13.	ERYTHEMA IRIS	94
14.	PEMPHIGUS VULGARIS	108
15.	DERMATITIS HERPETIFORMIS	112
16.	ACNE VULGARIS	123
17.	RHINOPHYMA	130
18.	BROMIDE ERUPTION	134
19.	IODIDE ERUPTION	135
20.	FISSURING ECZEMA OF THE HANDS	148
	VARICOSE ECZEMA OF THE LEG	148
21.	FLEXURAL TYPE OF ECZEMA	152
	SEBORRHŒIC ECZEMA	152
22.	ACUTE ECZEMA, SHOWING THE COMMENCEMENT OF THE VESICLE	157
23.	DERMATITIS EXFOLIATIVA	170
	PITYRIASIS ROSEA	170
24.	ANNULAR PSORIASIS	172
25.	ACUTE PSORIASIS	174
26.	SECTION OF PSORIASIS PAPULE	175
	SECTION OF LICHEN PLANUS PAPULE	175
27.	GENERALISED LICHEN PLANUS	183
	LINEAR LICHEN PLANUS	183
28.	LINEAR LICHEN PLANUS	184

PLATE		TO FACE PAGE
29.	LICHEN VERRUCOSUS	185
30.	LUPUS VULGARIS	190
	LUPUS VULGARIS WITH SQUAMOUS EPITHELIOMA	190
31.	SECTION OF LUPUS VULGARIS	193
32.	TUBERCULOSIS VERRUCOSA CUTIS	199
33.	SCROFULODERMIA	200
34.	LICHEN SCROFULOSORUM	201
	HIDRADENITIS SUPPURATIVA DESTRUENS	201
35.	ERYTHEMA INDURATUM (TUBERCULAR TYPE)	202
36.	ERYTHEMA INDURATUM (NON-TUBERCULAR TYPE)	203
37.	HUNTERIAN CHANCRE ON LIP	212
	LARGE PAPULAR SYPHILIDE	212
38.	VESICO-BULLOUS SYPHILIDE	213
	RELAPSING CORYMBOSE SYPHILIDE	213
39.	CONDYLOMA SYPHILITICUM	214
40.	NUMMULAR SYPHILIDE	215
	EARLY CORYMBOSE SYPHILIDE	215
41.	MILIARY FOLLICULAR SYPHILIDE	216
42.	PSORIASIFORM SYPHILIDE	217
	SERPIGINOUS SYPHILIDE	217
43.	NODULAR SYPHILIDE	218
44.	GUMMATOUS SYPHILIDE OF THE FOOT	219
	LATE SYPHILIDE OF THE PALMS	219
45.	SPIROCHÆTA PALLIDA	223
46.	SECTION OF AN EARLY SYPHILITIC PAPULE	228
47.	LEPROSY BACILLI	239
48.	BAGHDAD BOIL (NODULAR STAGE)	243
	BAGHDAD BOIL (ULCERATIVE STAGE)	243
49.	MOLLUSCUM CONTAGIOSUM	248
	SECTION OF MOLLUSCUM CONTAGIOSUM	248
50.	SECTION OF RODENT ULCER	250
	SECTION OF PAGET'S DISEASE	250
51.	NEUROFIBROMATOSIS	254
	XANTHOMA TUBEROSUM	254
52.	MULTIPLE SARCOMA	260
53.	MYCOSIS FUNGOIDES	261
54.	ADENOMA SEBACEUM	264
55.	ICHTHYOSIS	265
56.	CIRCUMSCRIBED SCLERODERMIA	269

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CHAPTER I

INTRODUCTION

ANATOMY—PHYSIOLOGY—CLINICAL EXAMINATION—GENERAL THERAPEUTICS

Anatomy.

The skin consists of two main portions—namely, the **corium,** or true skin, derived from the mesoblast, and the **epidermis,** or cuticle, derived from the epiblast.

The **corium** is a sheet covering the whole surface of the body, with the exception of certain apertures such as the eyes, mouth, etc., and is composed mainly of a feltwork of white fibrous tissue, with a network of yellow elastic fibres. It is conventionally divided into two parts: a deeper, the **pars reticularis,** and a more superficial, the **pars papillaris.** Of these, the **pars reticularis** is much the denser, the fibres being gathered into coarse bundles which run more or less parallel to one another. The direction of these bundles has a definite arrangement, varying in different parts of the body, and the lines along which the bundles run are known as the "lines of cleavage." This name has arisen from the fact that the directions of the lines were discovered by inserting a round awl into the skin and noting the direction of the slit-like cleft thus produced. They are of some importance, as they modify the shape of the lesion in some cases, and those eruptions which are greatly influenced by the direction of the lines of cleavage may be generally suspected of being produced through the blood-stream.

The **pars papillaris** varies greatly in different parts of the body, but is always of fine, loose texture, and is arranged in a series of more or less well-developed, simple or compound elevations known as papillæ. On its deeper surface it passes gradually into the pars reticularis, while upon its superficial surface is set the epidermis.

The arteries of the skin are derived from subcutaneous vessels which anastomose between the subcutaneous fat and

the deep surface of the corium. Oblique branches are given off from these, and run through the corium to the bases of the papillæ, where they break up into a plexus known as the subpapillary plexus, from which capillaries ascend into the papillæ. Except where epidermal appendages lie in the corium, only a few twigs are given off from the oblique branches until they reach the subpapillary plexus, and the deeper part of the skin is therefore a somewhat anæmic structure.

The **epidermis** forms the superficial covering of the body, and also gives rise to the so-called epidermal appendages—namely, the hair, nails, and sweat and sebaceous glands.

The surface epidermis consists of a number of layers of epithelial cells, which change their character from below upwards. The deepest layer (**stratum cylindricum**) is formed of roughly cylindrical cells, with their long axes at right angles to the surface. They fit on to the papillary layer by means of fine indentations, and are separated from one another by minute lymph channels. The cells themselves have a protoplasm showing marked fibrillation on appropriate staining, and a large oval nucleus. This fibrillation of the protoplasm is prolonged beyond the limits of the cell, and passes into that of the cell of the next layer, thus forming a connecting and supporting network.

In the next layer (**stratum spinosum**) the cells have much the same characteristics, but they differ in shape, being now polygonal. The intervening lymph channels are well developed, and the connecting fibrils are easily seen bridging the channels, and from these is derived the name "prickle cell layer." There are several layers of these cells, the number varying with the thickness of the epidermis in the particular region, and as they rise nearer to the surface they become progressively more and more flattened, until they pass gradually into the next layer, the **stratum granulosum.**

Under normal conditions, multiplication of the epithelial cells takes place from the stratum cylindricum only; but when proliferation is abnormally rapid, division may take place throughout the prickle layer, and this condition is known as **acanthosis.** Under no circumstances at present known does proliferation occur in any of the more superficial layers. Loss of epithelial fibrillation occurs in some diseases of

the skin, and always indicates a profound disturbance of nutrition.

The **granular layer** is formed of a few layers of flattened cells, the protoplasm of which contains deeply staining granules of various sizes. The origin of the granules is not known with certainty, but they are probably formed by the disintegration of the epithelial fibrils. They appear to be in some way connected with the formation of a normal horny layer, but cornification can undoubtedly proceed without their development. The cells appear to be in the act of dying, and the nuclei no longer stain with ordinary basic dyes. The next layer is the horny layer (**stratum corneum**), and this has been subdivided according to certain microscopic appearances; but these need not detain us. The cells of the horny layer lie in close apposition with one another, and are so much flattened that it is difficult to distinguish the individual cells unless they are separated by maceration. The nucleus is now entirely invisible, and examination shows that the protoplasm has been converted into fat, while a keratin envelope has developed outside. The free surface of the skin thus becomes covered with a tough, elastic, and waterproof covering, offering considerable resistance to the action of corrosives. Owing to the rapid reproduction and exfoliation of the horny cells, repair of damage takes place completely and quickly. The presence of any irritating foreign body is the signal for an increase in rapidity of the epithelial proliferation, so that the body becomes, as it were, encysted in horny cells and thrown off. The cells of the actively living layers, the stratum spinosum and stratum cylindricum, are often known together as the **stratum mucosum**, or **rete Malpighii**, and they offer a considerable resistance to the growth of parasites, so that ringworm, for example, never passes this epithelial barrier.

The **hair follicle** consists of a pocket of epidermis dipping into the true skin, and provided with a vascular sheath and an altered papilla at the base. The follicle is lined with the stratum mucosum, which is here known by the inappropriate name of the external root sheath. The superficial horny layer only descends a short distance into the neck of the follicle. The hair grows from a mass of cells at the bottom of the follicle, and from the same cells develops a sheath of two layers of cells,

known as Henle's and Huxley's layers, or the internal root sheath. Granules and a kind of cornification are found in these cells as they grow up by the hair, and so they may be considered analogous to the horny layer of the free surface. This sheath terminates at the neck of the follicle.

After growing for a variable time a hair ceases to grow, and dies, a kind of cornification taking place in the cells of the root.

The whole follicle then rises towards the surface, though less quickly than the dead hair. There thus accumulates below the cornified root of the hair a cord of living epithelial cells similar to those of the external root sheath.

After a time the basal layer of these cells begins to form a new hair, which becomes surrounded by a cavity in the cord of living epithelial cells.

The new hair lying in this cavity is thus always shut off from the old by a layer of living cells.

The importance of this is seen in the X-ray treatment of ringworm, since this barrier of living cells prevents the extension of the fungus from the old to the new hair.

The **sebaceous gland** is associated with the hair follicle, opening into the side of the follicle in those regions which are supplied with strong hair, and on the surface with a laterally placed hair in those parts where down only is found. It is a compound racemose gland, with one or two layers of flattened nucleated cells at the periphery, and large polygonal fat-containing cells next the lumen. It is uncertain whether the secretion is poured out from these cells or whether the whole cell liquefies and is cast off, but modern research favours the former idea.

The **sweat gland** consists of two parts—namely, the duct, and the gland proper. From the opening on the surface of the skin to the papillary layer the duct consists of a mere channel through the epidermis, but the cells surrounding this are horny and granular. The channel has a somewhat closely curved spiral course until the deeper surface of the epidermis is reached, when it becomes a true duct, consisting of two layers of epithelium, and then runs in a more elongated spiral course. The gland proper lies in the subcutaneous fat, and consists of a single or double, much convoluted tube. This tube is lined

with two layers of cells, the inner being secretory, and the outer muscular. In the axillæ and groins the glands are very large, so that a considerable amount of sweat may be accumulated in the coil, to be expressed by the contraction of the muscular cells from time to time. By this arrangement is explained the fact that, on stripping a patient on a cold morning, drops of sweat may be seen to exude from the axilla and course down the thorax, the explanation being that the cold causes contraction of all the skin muscles, and a consequent pressure on, and emptying of, the sweat glands.

The **nails** are peculiar cellular appendages, growing from a deep fold of epidermis which has dipped almost horizontally under the main skin surface. This mass of cells or matrix extends almost as far as the distal interphalangeal joint, a point to be borne in mind when, for any reason, it is considered desirable to destroy the nail permanently.

The nail proper or nail plate emerges from beneath the epidermis lying over the matrix, and a narrow band of horny cells from this epidermis or posterior nail fold accompanies the nail plate a variable distance after its emergence.

The part of the skin beneath the nail is known as the nail bed, and under normal circumstances only forms a horny layer at the free margin of the nail. In certain diseases, keratin may be formed over the whole bed, and the nail then becomes lifted from it.

Physiology.

The skin may be considered, first as an organ of protection; secondly as a regulator of temperature; thirdly as an organ of excretion; and fourthly as an organ with power of absorption.

As an organ of protection the skin is certainly very successful, considering the strain often put upon it. Owing to the construction of its surface, which, as already described, is made up of numerous cells, consisting of a keratin envelope containing fat, the skin is extensible, somewhat slippery and very tough, resistant to external irritants, and capable of rapidly producing a fresh surface. The weak spots are the pilo-sebaceous follicles and the sweat glands, and of these the former appear to be the more vulnerable.

As a regulator of temperature the skin acts chiefly by means

of its sweat glands, and these are under direct nervous control, and not merely activated by an increase of the blood-supply. This fact is proved by the occurrence of a dry, hyperæmic skin in scarlatina, and a moist, anæmic one in collapse.

As an organ of excretion, except in the case of salt and water, the skin is probably not very active. Certain drugs, such as sulphur, are excreted with the sweat, and, of course, urea has been frequently found in it, but it is generally admitted that uric acid is not found in the sweat. Many of the good results seen in profuse sweating, and ascribed to excretions of toxins, are probably to be accounted for by the loss of water, and perhaps salt from the tissues, and the lowering of blood-pressure.

The powers of the skin in the way of absorption are still more or less unknown, but it is generally believed that they are not great for most substances. Since the chief function of the skin is to act as a protective covering, it is obvious that a capacity for readily absorbing all bodies in contact with it would be highly undesirable. Most volatile bodies are, however, absorbed in some degree, and many bodies which injure the epidermis, such as salicylic acid and iodine, are taken up. From watery solutions very few drugs are absorbed, but they are more readily taken up from greasy applications; and it appears that goose fat allows of the greatest amount of absorption, and wool fat the least.

According to Lassar, oil poured upon the fur of the rabbit was readily absorbed, but it is doubtful whether this is applicable to the human being. It is probable that fats may be absorbed through the skin by inunction.

Clinical Examination and Nomenclature of Lesions.

In examining skin eruptions it is as well to complete the objective investigation before asking any questions, as one is apt to be misled by the patient's theories of his disease. The first part presented to view should be carefully observed, and after having obtained all the information to be received from this, other parts should be examined. It is often said that every part of the skin should be examined in every case, but it is safe to say that this is a rule which is seldom carried

out. For the purpose of purely clinical examination of the skin, the two methods are by sight and by touch (combined in some cases with smell). For the examination by sight I cannot too highly recommend the watchmaker's lens, which leaves both hands free for any necessary manipulation. The slight dexterity necessary for its use is easily acquired.

The sense of touch is used for determining the consistency of the lesion, and becomes extraordinarily sensitive with education. My habit is to divide the sensations given to the palpating finger into:

1. Tense, like that of a full bladder, found in œdematous lesions.
2. Tough, like that of india-rubber, found in syphilitic lesions.
3. Soft, like that of a not very stiff jelly, found in lupus.
4. Hard, like that of ivory, found in some new growths.

In order to acquire a rapidity in examination, it is well to follow some kind of system, and the following is recommended:

1. *Type of Eruption.*—Observe the variety of lesion present, also note if one or more variety is represented. Try as far as possible to observe from the different stages what is the life-history of the eruption. Thus, one may find in impetigo, by mere clinical examination in many cases, that the lesion is first vesicular, then crusted, and finally a mere reddened patch with thinned horny layer.

2. *Elements of the Skin affected.*—The lesion may be superficial or deep, connected with the follicle or the sweat pore, or merely indifferently situated on the glabrous skin.

3. *Distribution.*—This may be circumscribed, widespread, generalised if scattered all over the surface, or universal if no part escapes, symmetrical or asymmetrical.

4. *Subjective Symptoms.*—Itching, burning, etc.

The **lesions** of the skin may be divided into primary and secondary, but some of them may be either.

I. Primary.

A *macule* is a small discoloration of the skin without disturbance of the surface or consistence—*e.g.*, a freckle.

A *papule* is a small elevation above the surface of the skin, but not completely spherical nor very deep-seated. It may be pointed (acuminate), obtuse, or flattened (plane).

A *wheal* is an œdematous elevation of indefinite size, but usually in the form of a streak.

A *nodule* is a more spherical and deep-seated alteration of consistence of the skin, and may rise above the surface or be buried in it, as in lupus. The term is always restricted to such lesions as are caused by cellular new growth.

A *vesicle* is a small blister containing serous fluid.

A *pustule* is a small blister containing pus.

A *bulla* is a larger blister, and may contain serum, blood, or pus.

A *scale* is a partially detached flake of horny cells, but often contains also some dried exudation—*i.e.*, it is not a pure scale. The scale of ichthyosis is an instance of a pure primary scale, but scales are more often secondary lesions.

II. Secondary.

Scales as above mentioned.

Crusts are masses of dried exudation, either serum, blood, or pus.

Excoriations and *erosions* are losses of the horny layer, without destruction of the total epidermis.

Ulcers are losses of the total epidermis, and part or the whole of the corium.

Scars are the result of either ulceration or absorption of the skin without breach of surface. The latter variety is sometimes termed atrophy, and not scarring.

General Therapeutics.

(*a*) Internal Remedies.

Apart from the remedies for various well-defined constitutional errors, only three drugs need be considered—namely, arsenic, mercury, and thyroid extract. Arsenic is a drug which, owing to its over-use among the lay public, has fallen into perhaps unmerited disuse among the specialists. It may be given either in small tonic doses of 2 or 3 minims of the liquor, or in full doses, in certain cases of ill-defined malnutrition of the skin, especially those associated with indolent thickening of the true skin and atrophy of the nails.

Mercury, besides being almost specific in the treatment of

syphilis, is often of value in nutritive disorders of the skin of unknown nature, and it is by no means safe to conclude that a skin disease is syphilitic because it is found to yield to internal mercurial treatment.

Thyroid extract is a potent drug which must be used with care, but has in some instances given valuable assistance in the treatment of falling hair, and certain other obscure diseases.

Nevertheless, it cannot be too strongly insisted upon that haphazard internal medication is greatly to be deprecated.

(*b*) Local Treatment.

Before discussing the general principles of local treatment, it will be well to enumerate the forms of application that are used.

1. *Lotions.*—These may be simply evaporating liquids, which effect a loss of heat of the part, or they may contain some drug which it is wished to apply to the skin, and is best applied in solution or emulsion. Such drugs may be astringent and soothing, such as subacetate of lead, or strongly antiseptic, such as silver nitrate or perchloride of mercury. Further, insoluble powders may be suspended in the liquid, so that after its evaporation the part is left covered with powder. Baths probably act partly from their temperature, and partly as medicated lotions.

2. *Powders.*—These act on a dry surface merely as abstractors of heat, whereas, if the surface is wet, they absorb the moisture, and, if impregnated with antiseptic, have a tendency to limit the growth of micro-organisms.

3. *Ointments* are greasy applications which may be used as protective agents or as vehicles for carrying drugs. It should be noted that drugs which do not readily attack the horny layer are hardly, if at all, absorbed from watery solutions, slightly from alcoholic solutions, and in most cases freely from ointments.

It is also necessary to remember that ointments, owing to their waterproof nature, macerate the epidermis, and are apt to heat the part.

4. *Pastes* are ointments containing a high percentage of nearly insoluble powder. They are less heating than ointments, owing to a certain degree of porosity, and their superior "body" renders them more permanent dressings.

The addition of water to a paste containing wool fat makes a " cooling paste " somewhat resembling the old cold cream.

As an instance of a paste, Lassar's salicylic paste, commonly known in this country simply as Lassar's paste, may be given:

Pulv. acid. salicylic.	gr. x.
Pulv. zinci oxidi	ʒii.
Pulv. amyli	ʒii.
Paraffini mollis	ad ʒi.

And a typical cooling paste is as follows:

Ol. olivæ	ʒss.
Adipis lanæ	ʒi.
Pulv. zinci oxidi	ʒss.
Ag. calcis	ʒiii.

5. *Varnishes* are applications which dry and leave a film upon the skin. They may be either soluble or insoluble in water.

They have a very limited use, as a drug incorporated in a varnish has very little action, except in certain rare instances.

6. *Plasters* have two actions. They act as a sort of splint to the part, and any drug incorporated is likely to have its effect rendered very deep owing to the macerating action of the plaster.

They are difficult to make up well, and consequently the number of formulæ is limited. This disadvantage can be obviated by applying the drug in an aqueous or alcoholic solution, allowing to dry, and then covering with any bland waterproof strapping.

The General Principles of Local Treatment in Skin Diseases.

The ideal treatment of any skin disease should, of course, be based on an accurate knowledge of its etiology, and the possibility of removing the cause.

For instance, in scabies we have a disease whose main causation is perfectly well known, though perhaps there are in the mechanism of the production of symptoms details which are still unknown. Nevertheless, the treatment of scabies may be described as, first, identification of the parasite;

secondly, the exhibition of such remedies as are known to cause its death, and that of the ova, in the shortest possible time, and with the least possible damage to the skin.

Or, again, a case of eczema of the face and hands is suspected of being, and found on investigation to be, the result of exposure to the action of an irritating plant, such as the *Primula obconica*. The correct treatment is removal of the plant, and the application of a soothing remedy to the skin, though the former half of the treatment is so much the more important that the latter is often scarcely necessary.

Unfortunately, however, there are many cases in which our knowledge is not sufficiently advanced to enable us to deal with them in this rational manner. Nevertheless, it cannot be too strongly urged that every effort should be made to elucidate the real causes at work if we wish, not only to cure the particular attack, but also to insure the patient against recurrence.

When the etiology remains obscure in spite of our best efforts, we are reduced to the use of one of two other methods.

In the first place, there may be present certain anatomical faults with which we are familiar, and for which we have efficient methods of treatment. In the second, we may be ignorant even of the processes that are taking place, and are then reduced to using drugs simply because they are known to have been beneficial in previous cases of similar appearance.

As an example of the former of these two methods, we may imagine a case of weeping eczema where we have been unable to detect the cause.

We know here that the process at work is an undue excitability of the damaged area, resulting in congestion, œdema, excessive proliferation of the epidermic cells with improper or deficient cornification.

These abnormalities will form a guide to our treatment. The first desideratum will be, obviously, if we can, to subdue the undue excitability from which the other results proceed. We may use temperature as one of the agencies, either cold, which is obtained by the free use of cold evaporating lotions, or a much greater heat than that of the normal body—say a temperature of 120° F.—which often subdues the itching of which the patient complains; or, again, we may use the "static breeze," which appears to have a somewhat similar action.

Since the effect of simple water is always to cause œdema of the denuded epidermis, we shall be careful to use an isotonic or slightly hypertonic solution for our lotion, remembering that as evaporation takes place the lotion will become markedly hypertonic, and that this must be avoided by using the lotion in such quantity as will prevent undue concentration on the surface.

This is really, in my opinion, a fundamental principle in the treatment of "wet" skin diseases. One often hears that no water must touch the surface of a wet eczema, and consequently the part is often allowed to become fouled with dirt and dried discharge. I have found that even the most irritable discharging eczema may be bathed freely provided that the bathing solution is isotonic, or perhaps slightly hypertonic. I am in the habit of allowing my patients, even when suffering from large areas of denuded epidermis, to take a bath at a temperature of 99° F. in water containing 1 pound of common salt in each 10 gallons of water—*i.e.*, a 1 per cent. solution—which is very slightly hypertonic in relation to human blood.

The use of lotions or the bath has the additional advantage of preventing the formation of hard crusts beneath which serum stagnates, loses its antibacterial qualities, and becomes infected with pyogenic organisms.

If we are thus successful in causing the cessation of the active discharge, we then have to face the difficulty that the horny layer which is first formed as the result of the diminution of the more active inflammation is incomplete, and is deficient in fat and unduly moist. This moisture evaporates in the air, and the malformed horny cells dry up, become brittle and crack, causing fissuring down to the sensitive layers of the epidermis, and keeping up the irritation.

The application of grease will obviate this, but plain, waterproof grease, such as paraffin, will tend to macerate the part and call forth a return of the discharge. Here is the condition which is benefited by a porous grease, such as a paste or cooling paste.

Lastly, where the condition has become practically dry, but there remains thickening of the previously acutely inflamed part, we may use other methods, such as plasters, the X rays, etc., to reduce the thickening.

As regards the X rays, it may be remembered that largish doses of X rays subdue irritability of the nerves, and although strongly against the indiscriminate use of X-ray treatment in skin diseases, I find that in some very irritable dermatoses X rays are of inestimable value as a *temporary treatment only.*

Again, in diseases which are associated with marked hypertrophy, either of the epidermis or the true skin, or both, we have methods of causing the disappearance of this.

First, we may deal with the X rays. These have probably three actions. In very small doses they have a mild, stimulating action, but this is, as far as my knowledge goes, not often used. Secondly, in larger doses or in frequently repeated small doses they have a depressing action on the irritability of the cutaneous nerves. Thirdly, they cause in still larger doses atrophy of parts of the skin, most marked in the epidermic structures and newly formed accumulations of cells resulting from disease.

For the reduction of the irritability of the nerves they may be used in doses of one-third of a pastille dose once a week for three weeks, and if the desired result is not then obtained they should be rejected.

For producing atrophy of undesired cells the same dosage may be used, but the exposures may be continued for longer periods, in my opinion, until a total dose of not more than three pastilles have been given, and even with this amount I think it wiser to limit the exposures to one in each ten days, so that each pastille dose is spread over one month.

If desired, however, very much smaller doses—roughly, one-tenth of a pastille dose—may be given daily. Since the effect of these small doses seems to pass away somewhat rapidly, I have found that one can give fifteen of them—*i.e.*, about one and a half pastille doses in three weeks—without damage.

These fractional doses are too small to be measured accurately by the pastille, and it is therefore necessary to use a tube which turns the pastille rather regularly as regards time, and then to time the exposure.

This is really a return to the older method of administering the X rays, and although it is more exacting for the patient than the method in general use now, owing to the necessity of frequent attendance, I am convinced that for some purposes,

notably the treatment of rodent ulcer, it is incomparably superior.

Secondly, we may consider the use of liquid air or solid carbonic acid. These may be used to cause deep destruction—*e.g.*, in the case of moles, warts, etc.—or by applying one of them for a much shorter time one may sometimes bring about the resolution of deep and indolent infiltration, such, for instance, as occur in hypertrophic lichen planus.

Of the two, liquid air seems to me the more efficient, but owing to its price and the impossibility of keeping it in store, so that one can use it as occasion demands, it is not often used. It may be applied soaked into a pledget of cotton-wool wound round a stick and pressed repeatedly into contact with the affected part for four or five seconds at a time until a total exposure of twenty to thirty seconds has been given at one sitting.

Carbonic acid snow may be used either compressed into a pencil or mixed into a soft paste with acetone or ether, and then applied on cotton-wool, in the latter case approximating more nearly in its action to that of liquid air. The time of exposure should vary from about fifteen seconds in the case of a superficial nævus in a young infant to two or even three minutes in the case of a large wart.

It should be borne in mind that the skin of young infants is very sensitive to both liquid air and solid carbonic acid, and exposures to either for a period that would be easily borne by the skin of an adult might be followed by disastrous necrosis and ulceration in the case of an infant. It may also be remembered that the skin seems to acquire a certain degree of toleration for these extremes of cold, and a second exposure of the same area may safely be longer than the first.

The method of treatment by diathermy has given excellent results in some cases, but unfortunately the expensive and bulky apparatus required almost precludes its use except in the case of specialists and institutions. For the destruction of superficial growths and nodules it is very valuable, as it seems to be quite certain in its action, and although the pain produced is very sharp it is absolutely momentary.

Lastly, a few words may be devoted to the passing of drugs deeply into the skin by means of the galvanic current, the

method which is commonly known as ionic medication or cataphoresis. When treating skin diseases by this method, there is some difficulty in deciding how much of the effect is due to the presence of the peculiar ions, and how much due merely to the passage of the current. We do, however, know that certain bodies will exert their own characteristic action from the fact that it is possible to pass sufficient cocaine through the unbroken skin to cause complete anæsthesia of large areas.

Where one wishes to produce a considerable deposition of a metal in the tissues for destructive purposes it is, I think, useful to remove the horny layer first by means of blistering fluid, and I have tried this with some success in the case of lupus.

I have also noticed that of the cases of rodent ulcer which I treated some years ago by means of zinc ionisation, those that were ulcerated almost up to the edge of the lesion before treatment did well, and remained free from relapse, whereas those in which the growth showed little or no ulceration derived little benefit or relapsed early.

CHAPTER II

PYOGENIC INFECTIONS OF THE SKIN—THE RESULTS OF SCRATCHING

The skin, being exposed to the air, and in frequent contact with unclean surfaces, is particularly liable to infection by the commonest pathogenic organisms—namely, those of suppuration; and the pyogenic diseases, either as primary eruptions, or grafted on as complications of other dermatoses, form one of the most important chapters in dermatology.

It is, however, an error to suppose, as is apparently often done, that the surface of the skin in health is a hot-bed of actively growing micro-organisms. On the contrary, bacteria are only scattered here and there over the superficial horny layer, and in any small crevices such as occur round the apertures of exit of hairs and the mouths of sebaceous glands, unless, by the collection of secretion on the surface, a suitable medium is offered for their cultivation.

The infection of the skin may be brought about by the direct inoculation of the organism from another case of the same disease, or by a suitable trauma, with simultaneous or subsequent inoculation of the organisms with dirt, in both of which cases the disease may be described as primary; or more often it occurs as a complication of some other skin lesion, and may then be considered secondary.

The common pyogenic organisms affecting the skin are the Streptococcus pyogenes and the Staphylococcus pyogenes aureus, albus, and citreus; less commonly, other organisms have been found, such as the Bacillus pyocyaneus and a pseudo-diphtheritic bacillus. The streptococcus seems to be much more readily inoculated than the staphylococcus, and it will therefore be taken first.

The diseases caused by the streptococcus are:



CIRCINATE IMPETIGO CONTAGIOSA OF THE CHEST
(A Pure Culture of Streptococcus was obtained from the Vesicles)

A. Superficial.

1. *Acute.*—Impetigo contagiosa, pemphigus neonatorum, and probably pemphigus contagiosus tropicus.
2. *Chronic.*—One form of so-called eczema.

B. Deep.

1. *Acute.*—Erysipelas.
2. *Chronic.*—Chronic and relapsing lymphangitis.

A. SUPERFICIAL STREPTOCOCCIC INFECTION.

1. Impetigo Contagiosa.

This disease is the result of inoculation of the Streptococcus pyogenes beneath the horny layer.

Symptoms.—The earliest lesion is a slight red spot, but as the disease progresses very quickly this is seldom seen. The characteristic lesion may be considered, therefore, to be the fully developed vesicle or bulla which represents the height of the process.

This takes the form of a flat and flaccid blister when it occurs, as is most usual, on the face, while on the limbs and other parts, where the horny layer is thicker, the blister may remain entire, until it has become tensely filled with a straw-coloured serum. The lesion always rises from a red base, but frequently the redness can only be perceived at the edges around the bulla. On the face, and where the epidermis is thin, this bulla soon bursts and gives rise to a profuse flow of coagulable serum, which forms a yellowish gummy crust, looking as if it had been stuck on. On removal of this, a flow of serum again takes place from the red and shining base thus exposed. If left alone the process may come to an end, healing taking place beneath the crust, which drops off, leaving a red, shining surface with a very delicate and often slightly wrinkled horny layer covering it. Finally, as the redness dies away, there may be left for some time an area of pigmentation marking the site of the original lesion. Each individual patch usually undergoes spontaneous involution, at any rate in the centre, but it may spread at the edge almost indefinitely,

giving rise to polycyclical figures, and the lesion may be reproduced in other parts *ad infinitum*. As has already been mentioned, in parts where the horny layer is strong and resistant, the original bulla may persist and become tensely filled with a straw-coloured serum, which after a day or two becomes cloudy with leucocytes attracted by the subsequent infection of the contents with pyogenic staphylococci, such lesions being particularly common round the root of the nail, and forming a superficial variety of whitlow.

In certain cases of new-born children there seems to be a widespread infection all over the body, giving rise to a generalised eruption of clear bullæ, which cause the disease to simulate pemphigus; hence the name of **pemphigus neonatorum.** Such cases are usually the result of sepsis during, or soon after, birth, and are, in almost all cases, due to inoculation from without, though there is some reason to believe that the nursing of children by mothers suffering from puerperal septicæmia has determined an outbreak.

The disease is not a common one, but has occurred with some frequency in lying-in institutions, some of the epidemics being of a mild order, while others have been associated with a high mortality, depending probably on the virulence of the organism causing the disease.

Mention must be made in this connection of a disease known as **Ritter's disease,** or **dermatitis exfoliativa neonatorum,** in which a large part of the whole of the cutaneous surface of the child is affected by desquamation of the horny layer, exposing a dark red and somewhat moist base. Careful examination of the eruption reveals the fact that, where the scale is adherent to the underlying epidermis, there is really a slight undermining of the horny layer similar to that of a spreading impetigo contagiosa, and from this cavity the streptococcus may be cultivated. In a fatal case of mine in which, during life, no cultures were made, sections of the skin post mortem revealed innumerable colonies of cocci in a stage of active growth beneath the horny layer, and detaching it so as to form the extensive desquamation. The disease is an extremely fatal one, and probably represents the severest form of local streptococcic infection of the epidermis, and is therefore dealt with here rather than with the other forms of exfoliative dermatitis.

Pemphigus contagiosus tropicus appears to be a similar disease to that already described as pemphigus neonatorum, and probably derives its acutely bullous characters from the physical conditions to which the skin is exposed.

Mention must also be made of the lesion known as **ecthyma,** though the term has largely dropped out of use in this country. It was originally applied to the large, flat vesicles of impetigo contagiosa as seen on the extremities, and in this connection there is no need for its retention. In France, however, the term has been applied to those forms of suppurative infection in which actual destruction of the corium has taken place, with consequent formation of an ulcer. Several forms have been described—namely, the simple form due to streptococcic infection, a more virulent form in which the Bacillus pyocyaneus has been found on several occasions, and a very severe form known as fulminating ecthyma(**ecthyma térébrant**), chiefly seen in children in the diaper region. In a case of the last-mentioned variety, Dr. d'Este Emery found a diphtheria-like organism. It is probable that many sub-varieties of ecthyma may be found, produced by infection with the less common micro-organisms.

In the recent war very severe cases of impetigo and ecthyma were produced by the mud and generally bad conditions of trench life. These cases ran a much more severe course than those which we were accustomed to see in civilian practice, and also proved very resistant to treatment.

The eruption is in all its forms irritable, and in many cases there is considerable pain from the denuded, tender epidermis, especially where the lesions occur on some movable point and fissures extending down to the papillary layer of the corium result. The glands corresponding to the affected area are almost invariably enlarged and more or less tender, but suppuration is not a very common complication, considering the frequency of the disease. A certain amount of pallor and malaise is common, probably resulting from the absorption of toxins, but otherwise the health is not greatly disturbed. On the other hand, delicate children are much more liable to be attacked than the more robust, though, as the epidemics of impetigo in public schools (usually known as "scrum-pox") show, healthy boys are susceptible to the disease, given favourable conditions for its spread.

The *pathological anatomy* shows that the lesion consists of an intense congestion of the papillary layer of the skin, with œdema of both the papillary body and the deep epidermic strata. The œdema does not cause very marked swelling of the cells themselves, but rather dilates the intercellular lymph canals, and, streaming up towards the surface, accumulates beneath the horny layer, raising it to form the bulla which is seen as the clinical sign of the disease. Leucocytosis is not a marked feature in the pure disease, but occurs rapidly as soon as the primary infection becomes contaminated with staphylococci.

Diagnosis is important in two different ways: first, in determining the nature of the disease; and, secondly, having done so, in deciding to what the infection with the streptococcus is due, since a diagnosis of impetigo of the face and scalp which fails to take note of a pediculosis capitis can hardly be said to be complete.

The differential diagnosis, then, may lie between the disease under consideration and ringworm, so-called seborrhœic eczema, vesicating erythema, dermatitis herpetiformis, and syphilis.

From ringworm the usually much greater scabbing present, the greater multiplicity of the lesions, the less perfect ring formation, and, lastly, the *repeated* failure to find fungus with the microscope, are the distinguishing points. From seborrhœic eczema the absence of any particular site of predilection (seborrhœic eczema attacks by preference those parts which have a profuse sweat and sebaceous secretion), the essentially follicular nature of seborrhœic eczema not found in impetigo, and, again, the much heavier scabbing of impetigo, should be sufficient to establish the diagnosis.

In vesicating erythema and dermatitis herpetiformis, the presence of papules, the symmetrical grouping, the simultaneous outburst of the disease in crops rather than the successive infection and production of one lesion after another, are all symptoms which may be of service, but in some cases careful watching of the disease is the only method by which a positive conclusion may be reached.

Syphilis only simulates that somewhat deeper form to which allusion has been already made under the name of ecthyma.

The essential point lies in the superior amount of cell infiltration, and therefore toughness of consistence of the syphilitic eruption. Of course, if the so-called ecthymatous syphilide occurs as one of the early eruptions, there will be other signs to assist one, but the difficult cases are those in which there are only one or two lesions occurring as a relapse, and no other symptoms or signs of present or past syphilis to demonstrate the nature of the eruption.

The presence of impetigo contagiosa on the head and face should invariably suggest the presence of pediculosis capitis; if chiefly limited to the trunk, and especially its upper part, pediculosis corporis should be borne in mind, and if scattered all over the body, including the extremities, a careful examination for the presence of scabies must be made.

Lastly, in widespread, deep impetigo of the ecthymatous type, a careful examination of the urine for albumin, and especially for sugar, should be made, though I must admit that in my experience the detection of glycosuria as a cause of suppurative disease of the skin is extremely rare, and I may say that I have never been led to the discovery of glycosuria by the presence of suppurative skin eruptions, though I make it a rule to examine for it.

The *prognosis* of impetigo contagiosa is invariably good, though, of course, those cases in which actual ulceration has taken place are slower to recover than the simple superficial cases.

The *treatment* of impetigo contagiosa consists, first, in removing the scabs; and, secondly, in the application of some mildly antiseptic remedy sufficient to inhibit the growth of the micro-organisms without unnecessarily injuring the epithelial cells. To facilitate the former, the parts may be soaked in kerosene oil, which has a most extraordinary power of breaking up scabs (due precautions against accident by fire must, of course, be taken), or the parts may be fomented with a hot solution of 1 in 4,000 perchloride of mercury. The mercurial solution acts, of course, as an inhibiting agent, and the healing may take place quite satisfactorily under it; but it is usually quicker and more desirable to use an antiseptic ointment after the removal of the crusts, and for this purpose nothing is

better than a weak white precipitate ointment (hydrargyri ammoniati, gr. xx.; unguenti paraffini, ad ℥i.).

The violent and resistant cases already alluded to as produced by war conditions has led to the search for more powerful measures than the above. First among these I would place inoculation with a streptococcus vaccine, which should be either autogenous or derived from a case of impetigo.

Secondly, I have found that after the removal of crusts better results are sometimes obtained by frequent dabbing with lotio nigra or by using a 5 per cent. solution of aluminium chloride crystals. This latter is distinctly painful, but is sometimes marvellously quick in subduing the infection.

As it has an intense desiccating effect on the skin, it is usually best to treat the parts with some protective paste, such as Lassar's, after the activity of the original disease has disappeared.

In some cases, where the infection has persisted long enough to set up a thorough disturbance of the skin nutrition, the case is, as far as treatment is concerned, a septic eczema, and will be dealt with later on under this heading.

In dealing with pemphigus neonatorum, the treatment must be slightly modified on account of the delicacy of the patient both constitutionally and as regards the skin itself. The all-important point, if the disease be extensive, is to guard against a too great abstraction of heat through the denuded skin. The most efficacious treatment seems to be the prolonged soaking of the little patient in a bath at the temperature of the body, to which has been added boric acid in the proportion of ¼ pound to 10 gallons. The raw places may then be dressed with the official boric acid ointment and the child wrapped in wool. Localised cases may be treated with the weak mercurial ointment already given above.

I have recently come across a series of cases which are of some interest in that, while appearing clinically to be not very unusual cases of impetigo, they have an entirely different etiology and call for a different treatment.

The *symptoms* are those of an ordinary impetigo contagiosa of the circinate type, but so far I have only identified this particular disease in adults.

The edge of the lesion is formed as in ordinary impetigo by the remains of the bulla, and if a piece of the roof of this is put under the microscope, it is found that there are present numerous examples of what is apparently the ordinary Demodex folliculorum.

I thought at first that this was a new discovery, but Dr. Pernet pointed out to me that the association of the Demodex with ringed impetigo was mentioned in the British Museum treatise on Demodex. The describer was Dr. Herman Laurence of Melbourne, but the reference was not given. After some trouble I have succeeded in finding the reference, which was a demonstration of cases and microscopic specimens by Dr. Laurence in 1915. To him, therefore, belongs the credit or priority of observation.

Treatment.—Laurence claims that the disease is more resistant than ordinary impetigo, and advises painting with iodine.

I have found that sulphur ointment, as might be expected in the case of an animal parasite, is efficient in rapidly clearing up the disease.

Patients have from time to time told me that they have caught a scabbing disease from dogs that they have been treating for mange. "Follicular mange" of the dog is caused by a parasite indistinguishable from the Demodex folliculorum of the human being, and these cases may have been instances of the disease here described, though none of my cases of this disease had been handling mangy dogs.

I have provisionally named the disease **"Demodex impetigo."**

2. Chronic Streptococcic Infection of the Epidermis.

Symptoms.—This form of infection is seen usually in some fold of skin, the commonest situations being the back of the ear in the angle which is formed by the pinna and the skin over the mastoid region, the angles of the mouth and the alæ nasi, the flexures of the axillæ, elbows, groins, and knees, and the fold of the nates. The appearance of the lesion is sufficiently characteristic to be identified by the practised eye. There is a bluish-pink area, usually with a sharpish

margin, and in the centre, at the angle of the fold, a fissure which may be superficial or deep, and is often covered by a gummy scab. The general surface within the red area shows an obviously extremely thin horny layer, which possesses a shiny and slightly wrinkled appearance, due to the spongy œdema of the living layer beneath. To the touch the part has a peculiar feel, almost as if there were a very flat blister beneath the finger, and the faculty of detecting this condition is well worth acquiring, as it is often a most important aid in the diagnosis of difficult skin eruptions. Beyond the margin of the area there are usually not many outlying vesicles or pustules, but the margin itself may show ill-defined vesiculation. The glands draining the affected area are somewhat enlarged, but are not usually tender.

Treatment.—This disease is not easy to treat, and has, as a rule, no tendency to get well by itself. One has to remember that the long time which it has lasted is itself a factor against a rapid cure. The functions of the skin seem to get disorganised, and the local power of resistance is lost. In addition, patients suffering from it are usually constitutionally delicate, and though showing no obvious defect to give an indication for treatment, are easily upset by slight influences. In attempting to treat the condition, I think the perchloride of iron internally is valuable, and 10 or 15 minim doses with a little glycerine and infusion of calumba seem to have a useful effect; this may be explained, perhaps, by recent researches, which tend to show that the internal administration of the perchloride of iron increases the resisting power to the streptococcus.

Locally, mercurials are again of use, and I have found a weak ointment of the nitrate of mercury of great service; 1 drachm of the official preparation to an ounce of the unguentum paraffini is usually well borne. Another favourite preparation is ½ drachm of ichthyol in an ounce of 5 per cent. oleate of mercury ointment. In cases where the disease appears at the back of the ear it is essential to apply the ointment with great care; the pinna must not be roughly pulled forward, or any fissure which may be attempting to heal will be torn open and perhaps increased in depth. The pinna must be gently curled forward, holding the actual angle

still, until one sees whether there is a tendency to fissure, and, if one is present, it may be gently bathed with warm water and painted with a 2 to 5 per cent. solution of nitrate of silver in distilled water before applying the ointment.

A prolonged course of inoculation with a streptococcic vaccine prepared from the same or a similar case is often of service.

B. DEEP STREPTOCOCCIC INFECTIONS.

1. Erysipelas.

As this disease is fully treated in works on medicine and surgery, only an outline will be given here. The infection is apparently always derived from a local inoculation, though the site of entrance is often so small that it cannot be detected.

Symptoms.—In a short time, varying from a few hours to a day or two, a red patch is noticed, accompanied by more or less severe constitutional disturbance, with all the signs of a grave septic intoxication, such as fever, foul tongue, headache, pains in the limbs and joints, albuminuria, etc. The local signs are a circumscribed red patch of dense consistency, due to the stretching of the skin by the œdema of the corium, a steep hard edge, a polished surface, on which bullæ may or may not form, sometimes red streaks corresponding to the main lymphatic channels draining the site of inoculation, and adenitis of corresponding lymph nodes. The original patch spreads rather rapidly at the edges, often clearing in the centre, though not invariably.

After a time the spread becomes localised to one part of the border, so that it is rather a serpiginous advance than a purely centrifugal spread. As a rule, after the fifth or eighth day in favourable cases, the spreading ceases, and the whole patch becomes softened and flaccid, and after a variable amount of desquamation the skin returns to normal. Suppuration is rare, and when it occurs does so most commonly on the scalp, but great œdema of this region may be produced without any pus being present.

The *anatomy* of the disease is simple as regards the local lesion. The fibres of the corium are seen to be pressed apart by an intense œdema, and between the bundles of fibrous tissue

are to be seen very numerous short chains of streptococci; the vessels are greatly dilated, but diapedesis of leucocytes is not a marked feature.

The *diagnosis* is to be made chiefly from acute eczema. This is not in reality a matter of great difficulty if care be taken, though mistakes are very frequently made. The chief points are the much greater disturbances of the general health, and the marked rise of temperature in erysipelas, whereas in eczema, although the local signs may appear very formidable, the temperature is usually normal or raised only a degree or so.

Locally, the fact that erysipelas starts at one spot and spreads from this, whereas eczema has a tendency to flash out over large areas, is an important point of distinction. Again, the margin in erysipelas is far more clearly defined; blister formation, if present, is in the shape of large vesicles or bullæ here and there, rather than numerous small vesicles closely set all over the affected part, and the general consistency of the swelling in erysipelas is far denser than in eczema.

The *prognosis* is usually good, though a fatal termination is by no means rare.

The *treatment* should be by means of large doses (20 to 60 minims every four hours) of the liquor ferri perchloridi, constipation being carefully obviated by means of purgatives. Locally, the painting of the part with 25 to 50 per cent. solution of ichthyol in water seems to be almost specific, the induration rapidly subsiding, and the redness fading away, while at the same time the temperature falls and the constitutional disturbance abates. It is worthy of note that this treatment should be continued for a day or two after the apparent disappearance of all symptoms, as the condition has a marked tendency to relapse.

The specific treatment of erysipelas falls under two heads—namely, by the use of antistreptococcic serum or by streptococcic vaccine.

There is now no doubt that good results have been not infrequently obtained by the use of the former, though unfortunately success is not constant.

The inoculation treatment with streptococcic vaccine is more regularly successful, but requires great care in the reguation of the dosage.

Good results have also been reported after the intramuscular injection of colloidal manganese, but this method also frequently fails.

2. Chronic and Relapsing Lymphangitis: Elephantiasis One Form.

Symptoms.—This disease is most often seen on the face, occurring in the nasal and malar regions, affecting also the upper lip. On the slightest exposure to unfavourable circumstances, a cold wind, an attack of indigestion, etc., the part becomes bright red, swollen, and œdematous, with often a very shiny condition of the surface. There is no hard edge, as in definite erysipelas, and there is, as a rule, no constitutional disturbance. After a day or two the swelling subsides, and all the symptoms pass away, unless, perhaps, there is left behind a slight thickening. As the condition is one of essentially relapsing nature, thickening becomes more and more pronounced with each attack, until a form of permanent deformity is produced constituting a kind of elephantiasis of the part.

The important point both from the etiological and therapeutic point of view is the detection of some unhealthy condition which is permanent. This is often a fissure at the ala nasi, at the angle of the mouth, or at the canthus of the eye. Such a fissure is the seat of a chronic streptococcic infection, and, when depression of the resistance occurs, the infection rapidly spreads, causing the symptoms above described. In the absence of external lesions, the inside of the nasal cavity, the throat, and the condition of the teeth and gums, should be carefully examined.

Patients suffering from tuberculosis either of the skin or upper air passages are particularly liable to this affection, and all cases should be examined thoroughly with this possibility in mind.

The *diagnosis* is from ordinary erysipelas, as it is a much less formidable disease as regards the danger to the life of the sufferer and of infection to others. The lack of the constitutional symptoms and the indefinite edge are sufficient means of distinction.

Treatment must be directed towards the discovery of the chronic fissure, intranasal or oral disease, and if this is dis-

covered and put right, the tendency to relapse usually disappears. Where such cannot be found, the prolonged exhibition of arsenic internally has been recommended, but I must confess that I have been disappointed in its effects. The use of streptococcic vaccine has proved unavailing in my experience.

STAPHYLOCOCCIC INFECTIONS OF THE SKIN.

A. Superficial.

1. *Acute.*—Follicular impetigo; so-called Bockhart's impetigo.
2. *Chronic.*—Chronic pustular eczema, so called.

B. Deep.

Sycosis or folliculitis of the beard region; Quinquaud's disease, or folliculitis of the scalp; furunculus, or boil; carbuncle.

As has already been mentioned, the staphylococcus does not seem to be so readily conveyed by contagion as the streptococcus, and therefore it is usually necessary to lower the resistance of the skin before the organism can obtain its footing (local staphylomycosis). In other cases, the general resistance of the patient is so much lowered that repeated infection very easily occurs (generalised staphylomycosis).

A. SUPERFICIAL STAPHYLOCOCCIC INFECTION.

1. Follicular Impetigo.

Symptoms.—This disease is seen not very commonly on the heads and faces of young children, where it is probable that some irritant of low intensity has been at work. More often it results from the application of some irritating drugs to the surface for other purposes—*e.g.*, the inunction of unguentum hydrargyri in the treatment of syphilis or pediculosis pubis, the application of liniments, especially those containing turpentine, of plasters used for the relief of internal pain, and it is intentionally set up by croton oil in the treatment of ringworm by this drug.

The lesion is extremely simple. There is a small pustule of acuminate shape, not extending peripherally to any great degree, with tense walls and definitely purulent contents, situated at the pilo-sebaceous orifice. The suppuration does not extend to the bottom of the follicle, and if a hair be extracted, it will be found usually that it has a little drop of pus forming a collarette around it, but the hair comes out either with the root sheath in the normal condition or without the sheath at all. After a few days the covering horny layer breaks and the pus dries up to a scab, which falls off, leaving often a minute perifollicular pit to mark the site of the former pustule.

The condition, once set up, may run on almost indefinitely, as is the case with impetigo contagiosa of streptococcic origin; but in both diseases the continuance of the eruption is by the repeated production of fresh lesions, and not by the persistence of individual efflorescences.

The *diagnosis* is chiefly from the deeper folliculitis described immediately below, and can be made by drawing the hair, as already mentioned.

Treatment depends a good deal on the cause of the disease. In many cases, especially where the outbreak can be definitely traced to the application of an irritant, the mere opening of the pustules and constant bathing with boric acid or lead lotion is sufficient, and, of course, care must be taken not to apply mercurials to an eruption which has been caused by the inunction of unguentum hydrargyri. In other cases, where the history of an irritant is not present, a mild mercurial such as the weak white precipitate ointment or the unguentum hydrargyri flavi, either in the form found in the pharmacopœia or of the same strength, but made up in a base consisting of one part of oxide of zinc, one part of starch, and two parts of soft paraffin, may be used.

2. Chronic Pustular Eczema, So Called.

This disease, which will be dealt with again under the heading of eczema, is the result of a chronic staphylococcic infection of the skin, associated with disturbance of the general skin nutrition. The eczematous complication may be either primary—that is, the case may be one of eczema, in which,

owing to a low resistance of the patient to staphylococcic infection, the diseased surface becomes extensively invaded by staphylococci—or secondary, in the case where the persistence of a staphylococcic invasion has itself so disturbed the nutrition of the skin as to cause a catarrhal condition.

The *symptoms* are much the same in both cases—that is, there is present a red, weeping area, beset with small pustules, the whole of the affected patch being markedly œdematous and thickened. The margin is usually indefinite, small follicular pustules surrounding the patch, so that the completely normal skin is only reached some distance away from the main body of the eruption. The condition is very obstinate to treatment, especially where, as is often the case, the disease affects the lower extremity and the circulation of the part is impeded. The treatment is discussed below under the heading of Sycosis and Boils.

B. DEEP STAPHYLOCOCCIC INFECTION.

Sycosis, Folliculitis of the Scalp (Quinquaud's Disease), Boils and Carbuncles.

The *anatomy* of sycosis of the beard region is almost identical with that of folliculitis of the scalp. The causation of the infection in the latter disease is entirely unknown. The former may be called forth by a number of irritants in a patient whose resistance is low. Most frequently the starting-point is chronic irritation of the surface by some infective discharge, such as that of chronic conjunctivitis, affecting the eyelids and setting up folliculitis of the eyelashes, from whence the disease slowly extends to the rest of the face, or a chronic nasal discharge starting the disease on the upper lip. The disease is stated to be caught from the barber's in some instances, but I have convinced myself by careful observation that the disease which is transmitted at first is a simple streptococcic impetigo contagiosa, on which a staphylococcic sycosis develops later.

The constant working in an atmosphere which is impregnated with irritating dust may set up the disease, and it is very commonly seen, therefore, among engineers, colliers, etc.

Symptoms.—The initial lesion is a small pustule surrounding the hair and extending down to the bottom of the follicle, a more definite thickening being present than in the case of the simple follicular impetigo. On drawing a hair from one of these infected follicles, less pain is produced than in drawing a normal hair, and it is found that the root sheaths are brought with the hair, and appear as a greyish, semi-translucent, gelatinous sheath. The hair is reproduced after a time, but if the process continues for long, scarring of the skin is produced, with obliteration of the follicle and permanent loss of the hair. As the disease extends, the area, which at first was one of only scattered pustules, with apparently normal intervening skin, becomes diffusely red and covered with closely set pustules. Infiltration becomes fairly well developed, but seldom, if ever, attains to a great thickening of the part. Later, bald cicatricial areas develop, appearing as red and very smooth patches. Boils may occur on the affected part from time to time.

In Quinquaud's disease, or destructive folliculitis of the scalp, the process is much the same, except for the fact that scarring seems to occur much earlier, so that the hair is progressively lost from a very early stage of the disease, and as the process is less actively inflammatory, redness is less marked. Anatomically, the process is almost entirely limited to the follicles—that is, the epithelium of the root sheaths seems resistant enough to impose an efficient barrier to infection of the skin itself, though the occasional occurrence of boils shows that this barrier is sometimes broken down. The resistance of the patient is sufficient to prevent a great infection of the deeper parts, but is not high enough to deal with the infection of the follicles themselves, where, presumably, the circulation of serum is slow.

The *diagnosis* is to be made chiefly from impetigo of both forms, from ringworm of the beard, and from one form of syphilitic affection of the beard region. Impetigo contagiosa should be easily distinguished by the heavy crusting, the absence of marked pustulation or thickening, and the absence of any definite infection of the follicle itself. Impetigo Bockhart is characterised by features very similar to those of sycosis, and there is no doubt that in every case of this

kind of impetigo a few hairs are affected with the deep folliculitis of sycosis; but examination of several will show that the pustule of impetigo is for the greater part limited to the mouths of the follicles, and does not descend to the root of the hair. Ringworm of the beard shows three distinctive features: first, the occurrence, almost invariably, of small scaly areas in which the fungus may be found microscopically; secondly, broken hairs, fragments of which will often show the mould within the substance of the hair itself; lastly, in ringworm the lesions show grouping and usually great nodose thickenings, often of the size of a hazel nut.

Syphilis may very closely simulate sycosis in some cases, but the points of distinction are the grouping of the follicular lesions, in which suppuration only secondarily takes place; the presence of marked brownish, semi-translucent, and fleshy papules; and the absence of itching and usually of much pain.

Boils — *Symptoms.* — A boil is apparently most often simply a staphylococcic folliculitis in which the staphylococci have passed through the sheath and escaped either laterally or below the follicle. The result is then the production of a central slough in which the follicle is involved, and this slough is slowly separated by suppuration around it.

The suppuration tracks up to the surface, but is arrested for a time by the solid horny layer, so that at one time a large or small flattish pustule is seen round the hair, and this has given rise to the mistaken belief that an obvious superficial pustule always precedes the formation of a boil. As a matter of fact, repeated observation has convinced me that the earliest sign of a boil is often a hard, smooth papule lying rather deep in the skin and showing only the slightest discoloration of the surface. It is at this stage often extremely itchy, but burning pain may also be present. The papule rapidly enlarges and becomes somewhat acuminate in shape, and is then always associated with intense pain, usually of a throbbing and burning character. Then, as the pus begins to form and track upwards, there is considerable œdema around the central lesion, and a pustule begins to appear on the surface. If left alone, this bursts in time, and a small quantity of pus escapes, followed later by a larger quantity and a solid slough, popularly called the "core." Granulations

then begin to spring up, and the lesion heals slowly with the formation of a circular scar, which may remain indurated for some time. In some cases the process does not go on to active suppuration and slough formation, but, after arriving at the stage of a painful red node, subsides, though not entirely, and may again and again become active before eventually clearing completely.

It is generally held that a boil is invariably due to local inoculation of staphylococci, but though admitting this to be by far the most frequent event, I think there is reason to believe that in some cases embolism of cocci from the blood-stream may produce a lesion clinically indistinguishable.

A **carbuncle** is to all intents and purposes a group of boils in which the inflammatory foci have become confluent, so that a large flat slough is formed in the skin. The openings of the various individual lesions lead down to different parts of the same slough, and there is considerable difficulty in getting the necrosed tissue away.

As regards constitutional affection, in sycosis it is usually completely absent, in boils there is often a certain degree, depending on the number and size of the lesions, while in carbuncle there is always a considerable constitutional disturbance, and if the lesion be situated on the face there may be dangerous and even fatal septic absorption.

Boils may be produced in the previously healthy individual by the infliction of sufficient damage to the skin to render it locally prone to infection, and those produced by friction, such as are seen on the buttocks of rowing men, or by the inunction of mercurial ointment, may be given as instances of this type. In these cases the removal of the cause is usually sufficient to enable recovery to take place. Multiple boils scattered over the body are, however, invariably associated with a diminished resistance, and this may apparently be congenital in those cases where attacks of boils occur every few months throughout life. Acute infectious fevers, especially smallpox and enteric, are also causes of low resistance, and there is little doubt that chronic poisoning from the emanations of defective drains acts in the same way. Autotoxæmia from intestinal trouble is also a great cause, and lastly may be mentioned glycosuria.

Treatment.—The constitutional treatment of sycosis, boils, and carbuncle is identical in all three cases, and will therefore be given together in order to avoid repetition. The important point is to raise the resistance of the blood and tissues generally to infection with the staphylococcus, and until recently the only known methods were those of placing the patient under suitable conditions of rest, fresh air, and good diet, and the administration of tonic and certain other drugs. That these methods did tend to restore the lost resistance is undoubted, but it cannot be said that any acted in a truly specific manner. Perhaps the nearest approach to such an effect was reached by the old-fashioned yeast treatment, in which the patient was ordered a teaspoonful of fresh brewer's yeast three times a day; by the administration of stout to patients who could digest it; and by the administration of calcium sulphide, though the last named seems to be very capricious in its action. It is probable that calcium sulphide owes part, at least, of its occasional efficacy to the calcium that it contains, since I have noticed in several cases of boils that the blood is extremely liquid and slow to coagulate, and patients have told me that no good effect has been noticed until doses much higher than those usually given have been reached.

The treatment suggested by Sir A. E. Wright—namely, that of injecting known quantities of Staphylococcus pyogenes aureus or albus, suspended in salt solution and previously heated to 60° C. in order to deprive them of vitality—is undoubtedly of immense value. The amount to be injected should vary from 250 to 2,000 millions, and the injections should be separated by a week at least. The injection is accompanied by some tenderness at the site of inoculation, lasting about twenty-four hours, and very seldom there is a slight malaise. Newly forming lesions are generally successfully aborted, and, provided care is taken to give neither too powerful nor too frequent injections, the case usually progresses swiftly and steadily to recovery. It is not known definitely how long the good effects of the treatment last, but it is almost certain that, where the resistance is so habitually low as it appears to be in those patients who suffer from attacks of boils from their childhood upwards, it is necessary to repeat the course occasionally. If it be considered that

this is against the method, it must be remembered that it has at least a temporary specific value, whereas the old tonic treatment seldom or never had this.

Two other constitutional methods are worthy of mention. The first is the administration of tablets of "stannoxyl" (metallic tin and its oxide). I have tried this on several occasions, and have found it occasionally successful, but it has not been constant in its action.

The second is by the intramuscular injection of colloidal manganese. This has given me a much larger proportion of successes, and I think I may say that it is a valuable addition to our methods of treatment. It is, however, by no means regularly beneficial. I think it important to avoid over-dosing with this drug, and have had the best results from an initial dose of 0·5 c.c., a second in three days' time, also of 0·5 c.c., and a third of 1·0 c.c. at the end of another three days.

Local Treatment.—Sycosis. This is most rebellious to treatment when it has become thoroughly established.

Two points of view must be considered—namely, the free drainage of the follicles or their temporary abolition, and the prevention of fresh infection.

The former of these may be obtained by full doses of X rays (see under Ringworm), and the latter by the use of local antiseptics. After trying numerous local applications I have found two pre-eminently useful—namely, frequent fomentation with 1 in 4,000 mercuric chloride and the use of the following (Brooke's) ointment:

℞ Acid. salicylic. .. .. gr. xx.
Ichthyol. .. .. ʒss.
Ung. hydrarg. oleatis (10 per cent.) .. ʒi.
Pulv. zinci oxidi .. .. .. ʒii.
Pulv. amyli .. .. ʒii.
Paraffini mollis .. .. ʒss.

These may be combined, the fomentation being applied several times a day and the ointment used in the intervals. The ointment must, of course, be removed with soap and water before each fomentation.

In spite of the combination of epilation with local antiseptic treatment and inoculation, I find that I commonly fail to cure old-standing cases.

In such cases I find that the only method of cure is to repeat the depilatory dose or X rays every three weeks until permanent destruction of the hair follicles results. This is not free from risk, and is almost invariably followed by progressive atrophy of the skin and development of telangiectasis, but even this condition is preferable to the continuation of the disease. The patients must, of course, be warned of the risk of dermatitis and the certainty of telangiectatic atrophy.

In the treatment of boils one has to consider two other points—namely, the presence of marked pain and the occurrence at one stage of a profuse infective discharge.

In order to relieve the former hot applications are often used, and it is common to find that the patient has already resorted to the time-honoured bread or linseed-meal poultice before seeking advice. Nothing can be more certainly prejudicial than the common poultice. It relieves the pain, it is true, but it macerates the skin, and tends to the auto-inoculation of the organisms and the production of new boils in the immediate neighbourhood of the original lesion.

For the relief of pain heat may be used, as it has the additional advantage of also bringing fresh blood to the part; but it must be applied in such a manner as to preclude further infection. The 1 in 4,000 fomentation alluded to above fulfils all the conditions of successful local treatment (boric acid fomentations should be avoided), and at the period of discharge the widespread application of Brooke's ointment forms an efficient barrier to further infection of the follicles, and even, in my experience, limits or aborts very early small boils.

It has been suggested that early boils may be successfully aborted by the injection around them of a 1 in 20 solution of carbolic acid, and this is undoubtedly true in a certain number of cases; but I do not find the method regularly or even frequently reliable.

As regards the question of incision of boils, it must be remembered that a boil is not an abscess, and that there will remain behind after incision an adherent slough which will only separate in its own time. This being so, incision can only relieve tension and subdue pain, and it is for this purpose alone that I can recommend it. Many patients have told me that incision of early boils has given no relief to pain, and it

is only when the suppuration has become sufficiently superficial to be visible beneath the horny layer that the knife should be used, in which case a small puncture will be sufficient and will leave only the slightest scar.

In carbuncle the case is, of course, different, owing to the large size of the flat slough. Free incision is probably always the best treatment unless the lesion is small enough to be excised entire, but the injection of carbolic acid solution, as mentioned above, may be tried.

THE RESULTS OF SCRATCHING.

Having dealt with the results of pyogenic infection of the skin it will be as well, before proceeding to the description of any of the other skin diseases, to give a short account of the results of scratching of the skin. The appearances produced form a fairly well-defined picture, and since they are common to almost every chronic pruritic disease it will simplify matters if they can be recognised easily, and thus put aside in dealing with the symptoms proper to each disease.

The results of scratching may be divided into the primary and secondary effects.

The primary effects are hyperæmic streaks usually associated with erection of the follicles, œdematous wheals and papules, long excoriations or scratches, and punctiform hæmorrhages or blood-scabs, due to the decapitation of the wheal-like papules formed by the erection of, and œdema around, the hair follicles.

The secondary effects are pigmentation due to escaped blood-pigment, and this may be either general, where the pruritus has existed for a long time, or local, in the form of scattered streaks due to single scratches: slight superficial scarring here and there where the trauma has been sufficiently deep to reach the corium; and a peculiar form of hypertrophy of the epidermis associated with slight infiltration and sclerosis of the true skin beneath (lichenification of the French authors).

The appearance of this lichenification merits a few words of special description. It is found in patches, and most usually either where the skin is subjected to frequent movement, such as the neck and the front of the wrist, or in the flexures of the

joints and hot, moist regions generally. The reason for the latter localisation is probably the greater tendency to overgrowth of the epidermis in such regions. The patch is generally of an irregularly circular shape, is slightly raised, brownish in colour, slightly scaly or shining on the surface, and if carefully examined shows all over its surface a division into little angular areas which are in reality due to the exaggeration of the normal markings of the skin. On picking up a fold of skin, including the patch, it is found that it feels thickened and inelastic, and if the process has proceeded very far it may be difficult to raise it in a fold at all (" hide-bound " condition). There are often little hard papules surrounding the main patch, and these correspond most frequently with the mouths of the follicles.

Lastly, as the result of scratching may be mentioned localised or generalised pyogenic infection of the skin, generally mixed staphylococcic and streptococcic infection. In consequence of this, the superficial lymphatic glands may be indolently enlarged.

CHAPTER III

DISEASES DUE TO ANIMAL PARASITES

Pediculosis.

THREE forms of pediculus affect the skin—namely, pediculus capitis, pediculus corporis, and pediculus pubis.

Pediculosis capitis is by far the commonest variety in England; in fact, it is rare to find even the best-cared-for female child of the lower classes, if attending any of the free schools, who does not show a few ova attached to the hairs. The disease is very contagious, for the parasite will live some days at all events when separated from its host, and, moreover, wanders about the surface of the head. Consequently, it may drop off on to another individual if the infected person lean over her, or it may be left behind in headgear.

The parasite is about 4 millimetres in length when full grown, and appears among the hairs as a greyish-yellow body. It moves fairly rapidly with a wriggling movement, and when uncovered by moving the hair seeks to hide by running down towards the skin. The female lays her eggs on the hair, moving down towards the scalp as she does so, so that the oldest egg lies farthest from the root. The eggs, or "nits," are greyish conical bodies, and may be easily mistaken for pieces of scurf, though on close examination they have a more regular outline and a polished appearance. They are covered with a chitinous coat, and are glued on to the hair by means of a complete sheath of cement surrounding it.

The shell is made in two portions, and consists of a little conical bucket with an operculum, or lid, which is tightly glued on. The whole can be moved up and down the hair with fair ease, but cannot be readily detached, owing to the tubular sheath of cement with which it is fixed. Empty ova may be distinguished with the naked eye by the silvery sheen which they possess when the light falls obliquely upon them, owing,

no doubt, to the presence of air within. The period of incubation has been variously given as from six days to three weeks. The number of eggs laid by the female is very large, and the lice breed with great rapidity on a suitable soil. There is, I think, little doubt that unhealthy people are a more favourable breeding-ground than the robust, and children are much more frequently affected than adults.

Symptoms.—There appears to be no primary lesion recognisable as such in pediculosis capitis, but the chief symptom is intolerable itching. The secondary lesions are of a pyogenic order, and although agreeing with Redcliffe-Crocker that they belong more properly to the class of impetigo contagiosa than of eczema, yet I must admit that there is a marked tendency to diffuseness of the eruption, and a greater tendency to its eczematisation, than is usually seen with pure impetigo contagiosa. The ease with which the eruption is cleared off when the pediculosis is killed out is strong evidence of the correctness of the view that it is a simple septic infection rather than eczema.

It should be remembered that the parasites, when present in cleanly people in small numbers, may easily be overlooked, and an ill-defined, pruritic, papular rash on the nape of the neck should always give rise to strong suspicions of pediculosis capitis. Also in some people a generally blotchy condition of the face with red nose is produced, and in Vienna it was the custom to identify the disease by this appearance as the patient walked into the room.

The *diagnosis* offers no difficulty if the disease is borne in mind and the scalp well searched, and in all cases of adenitis of the neck examination should be made, remembering that in mild cases the most favoured sites are the nape of the neck and the hair immediately above the ears.

Treatment.—I always recommend that people of the class whose children attend free schools should keep their girls' hair short like that of their boys, as it is comparatively uncommon to find marked pediculosis of a boy's head.

Given an infection, what is the quickest way to destroy it? Many methods have been recommended and employed, but as one is absolutely satisfactory I now never use any other. It

is unnecessary to cut the hair. The patient, unless of extremely tender age (any age over three years is great enough), should lie on her back on the bed with the head projecting beyond the edge over a basin placed on a chair. A sufficiency of a hot 1 in 40 carbolic acid solution should then be poured over the head from the front into the basin in which the hair lies. The solution is then emptied back into a jug, and poured over again and again until it is quite certain that the hair is all saturated. The hair is then only lightly squeezed out, and the whole head done up in a rough turban with an old piece of flannel, and this is left for from one hour for a small child to two hours in the case of an adult with thick hair. It is not necessary to wash the hair, which may be simply dried, as the carbolic acid does no harm, though it causes some desquamation of the scalp. This treatment has never once failed since I have taken to using it, and the impetiginous lesions heal quickly after the prolonged soaking in carbolic. The nits are not removed, but the embryos are killed by the penetration of the carbolic acid. For removal of the nits acetic acid (in a strength of 4 per cent. applied by means of a wooden fine tooth-comb) is efficient.

Hat-linings should be renewed or the hats sterilised by stoving. Brushes may be soaked in boiling water without damaging the bristles if no alkali be added; care must be taken, of course, to prevent the boiling water from drenching the back of the brush, as this would loosen the attachment of the bristles.

Pediculosis Corporis.—This parasite, unlike that of pediculosis capitis, is seldom found on young subjects. It may affect adults of any age, but is most commonly found in elderly people, especially those who are in a condition of senile cachexia. The louse itself wanders over the body, and sucks blood from the skin by protruding a small proboscis, which is said to enter the orifice of the sweat glands. It is not often found on the skin when the clothes are removed, since it generally adheres to the clothes. The best place to search for it is towards the neck of the garment, especially if it be of woollen material, and it may usually be found hiding under the crevices formed by the hems. It is of greyish colour, and shows a dark marking, which appears to be due to the altered

blood shining through its abdominal cavity. It is said to be slightly larger than the head louse, but as both vary much in size this distinction is difficult to establish, and I am bound to admit that after frequent examination of many examples of both kinds I am quite unable to distinguish between them morphologically. The nits are laid on the hairs of the clothing, and occasionally on the lanugo hair of the body.

The *symptoms* of this disorder are a general pruritus of the body and proximal parts only of the limbs, the site of greatest intensity being generally the shoulders.

The "hæmorrhagic speck" supposed to be the initial lesion produced by the sucking of the insect, and appearing as a minute red point not perceptible to the touch, nor disappearing on pressure, is given by some authors as distinctive of the disease, but I can only say that I am unable to identify it with certainty among the host of other lesions usually present.

The other lesions are all those of the results of scratching already described, and as the disease may last indefinitely the pigmentation may become so marked (vagabond's disease) that it has been mistaken for Addison's disease; but the thickening of the skin and the signs of tearing should prevent the confusion. In some cases of very severe infection febrile symptoms have been observed, probably due to the toxin inserted by the animal.

Diagnosis.—Pediculosis corporis has to be distinguished principally from other forms of pruritic disease of the trunk. The confusion with Addison's disease, alluded to above, would scarcely ever occur in this country, and a careful analysis of the symptoms should suffice to separate the two diseases anywhere. From pruritus senilis and from certain of the less defined papular eczemas the distinction may be difficult, but the points on which most stress should be laid are the limitation of the eruption to the trunk, with especial affection of the neck and shoulders, the very scattered distribution of the individual lesions, and the tendency to the formation of blood rather than of serous crusts. Of course, exception to this last rule must be made in those cases where the pediculosis has become eczematised, or, as I prefer to express it, brought about a condition of eczema.

The *treatment* of the condition is simple—namely, a hot

bath with plenty of soap and water, followed by the inunction of the ordinary white precipitate or sulphur ointment. It is extremely important that the clothes which have been worn both during the day and the night, and the bedclothes, be disinfected, as the nits are chiefly laid on these, though also on the lanugo hair.

Pediculosis Pubis.—This is a much less frequent disease than either of the two former varieties, and is most often transmitted venereally. The parasite is of a very distinctive shape. The body is broad and short; in fact, almost circular in shape. The limbs are proportionately very long, and are curved in a spiral manner so as to be adapted to clinging to the hairs. To the naked eye it appears as a darkish-grey speck, and may be easily mistaken for a piece of fluff left from a woollen garment. It lies almost invariably at the root of the hair, with its head pointing towards the skin, while it moves only very slightly, and clings so closely to the hair that the effort to detach it generally breaks off one or more limbs. The nits are laid on the pubic hairs, and are of a dark colour. The parasite not infrequently attacks the axillæ, and on very hairy bodies may be widely distributed. More rarely it attacks the eyelashes (pediculosis ciliorum).

The *symptoms* are intolerable itching of the affected part, and pruritus of the pubic region should invariably give rise to the suspicion that pediculosis pubis is present.

On the eyelashes (pediculosis ciliorum) the affection is liable to be mistaken for tinea larsi, but a careful examination will at once reveal the parasite. As has already been stated, the disease in its usual situation is most often acquired venereally, but it may also be caught by the use of dirty closets after an infected patient has been sitting there.

Treatment.—The remedy which is generally used by the public is the unguentum hydrargyri, but this, though efficacious, is not to be recommended, on account of its liability to set up a pustular folliculitis. Safer remedies are unguentum sulphuris, or an ointment containing 25 per cent. of either balsam of Peru or styrax. The hair should not be cut, as when it first begins to grow again intolerable itching and sometimes actual pain are occasioned by its catching in the clothes. For those cases in which the eyelids are affected a

weak ointment of mercuric nitrate (½ drachm of the official ointment in an ounce of lard) may be used, and the insects should be picked off the lashes with forceps, daily examination being carried out for about a fortnight.

Scabies.

This disease is caused by the feeding and breeding of a minute spider, the Acarus scabiei, in the horny layer of the skin. The parasite is of oval shape, and has, when full grown, eight legs, each of the four posterior ones being provided with a long vibrissa in the female, while in the male the two inner posterior legs end in short, rounded projections. The male is, however, very rarely found, as it does not live in the characteristic lesion, and there is therefore no indication of its position. The female, immediately after impregnation, which usually takes place at night, burrows its way beneath the horny layer, causing a minute tear at the point of entrance. It then pursues a course more or less parallel with the surface, but gradually becoming deeper, and lays its eggs behind it, with here and there little heaps of excrement, finally dying in the burrow and becoming cast off by the desquamation of the horny layer.

The *symptom* of the disease is intolerable itching, which is worst on going to bed at night. The signs are, first, the cuniculus, or burrow. This is seen by the naked eye as a minute, fretted line, roughened from the disturbance which it sets up in the horny layer. The burrow is usually blackened by adhering dirt, but may be grey or white in people who keep extremely clean.

It varies much in length, being usually about ¼ inch long; it is generally sinuous, and may be actually curved back upon itself. At the orifice of entry there is to be seen a slight fraying of the horny layer, while at the farther end of the burrow there is often a small vesicle, immediately beyond which is to be found the acarus. This is not usually visible in the burrow to the naked eye, but by using a moderately strong, simple lens (of about 2½-inch focus) it may be seen buried in the horny layer and appearing as a tiny greyish body with a definite glitter.

To extract it for microscopic examination the following procedure is used: A burrow is selected which has not been scratched open, and preferably one which does not show a large vesicle, as this is apt to be pricked in the manipulations and the bearings lost in the gush of exuding serum. Holding an ordinary fine pin somewhat as a violinist holds his bow, and keeping it almost parallel with the surface, the point is run gently into the surface of the epidermis towards the distal end of the burrow from beyond it. The point is pushed on until it reaches just beneath the grey speck, and it is then raised so as to turn up a little flap. The acarus is then raked off the under-surface of the flap by a sidelong movement of the pin.

Another method is to slip the point of a fine knife beneath the whole burrow (I prefer in this case also to push the point in from the distal end of the burrow), and by cutting out at one side to turn up a larger flap containing the whole burrow with the parasite at one end. This usually wounds the papillæ and causes a little bleeding, which should not be the case with the first method.

The burrows are found chiefly between the fingers, on the fronts of the wrists and ulnar sides of the hands, the extensor surfaces of the elbows, the anterior pillars of the axillæ, the nipples in women, the umbilicus, the penis in men, the buttocks, and the feet in the same positions as on the hands.

Secondly, in addition to the burrows there is a variable amount of other disturbance. The most common additional signs are small, tense vesicles, not connected with burrows, scattered about over all the sites of predilection. Next, there are almost invariably found small blood-scabs, the result of scratching these vesicles, and in addition there are often all the forms of eruption already detailed under the results of scratching, even a well-marked patchy eczema being sometimes present.

Lastly, it must be remembered that though scabies does not attack the face in adults, it does so very frequently in young infants, thus simulating a pustular eczema.

Diagnosis.—The diagnosis of scabies rests upon two points only—namely, the presence of the characteristic burrow, and the peculiar distribution of the lesions. The diseases most

likely to be mistaken for it are eczema of fingers and the disease known as lichen urticatus in children. **In both cases the disease is to be considered as scabies until a careful examination of the case has proved it not to be so.**

Contagion and Method of Spread.—Since the female, immediately on impregnation, burrows beneath the horny layer and finally dies there, it will be readily understood that scabies is not so easily transmitted as pediculosis. A close and prolonged contact is probably always necessary, and it is most likely to be efficacious if at night. Among the poor, where all are huddled together, the disease is very frequent, but among the well-to-do, where it is not uncommon, the disease may be considered a venereal one. It is true that not every case is of venereal origin, but it will be generally found that there is a small epidemic in the house, and that the first person acquired it venereally. Under war conditions, as might be expected, an enormous increase took place in the disease among both the military and civil population, and the proportion of attacks acquired venereally was much smaller.

Treatment.—There are three points to be attended to in the treatment of scabies: First, the killing of the acarus and the ova; secondly, the disinfection of the clothes; and, thirdly, the subduing of the inflammatory symptoms caused by disease and often aggravated by the treatment.

All linen and cotton clothes and bedclothes may be easily disinfected by throwing them into boiling water, but woollen garments would be spoiled by this procedure. It is better, therefore, either to have them sterilised by steam heat in one of the apparatus maintained for disinfection, or, if the patient is out of reach of these, a simple and harmless method is to spray the infected garments with formalin solution and then leave them rolled up for a few hours. They should be washed and well aired before using them again, as the vapour of formic aldehyde clings to them and is very irritating.

For the destruction of the parasites in the skin many drugs have been used. The great point to be secured is the breaking open of the runs and the thorough contact of the parasiticide with the parasite. For this purpose it is best for the patient to have a hot bath before commencing treatment, and, in the case of an adult, soft soap may be used as an inunction and

then washed off in the bath, the more horny parts of the skin, such as the hands and feet, being well scrubbed with a nail-brush in order to break open the runs. The application is then well rubbed in, and the night clothes put on, in addition to which I think it advisable to let the patient wear cotton gloves and socks. Next day no washing other than that of the hands and face is allowed, but a second inunction of the ointment is practised. On the third day the conduct is that of the second, and on the fourth morning a bath is taken to remove the ointment accumulated from the three inunctions, and the patient is merely kept under observation for ten days to make sure that no recurrence takes place. More recently I have increased the number of rubbings on the hands and forearms to six. The reasons for this are that the thicker horny layer of the hands renders them more resistant to treatment; they are less apt to develop sulphur dermatitis; and they are, of course, only under treatment at night unless the patient is kept in bed. In the case of young children and patients with delicate skins the soft soap is omitted, ordinary toilet soap being substituted. With hospital cases I instruct the patient to wear the same underclothes day and night until the completion of the treatment, a procedure which insures their complete disinfection.

The drug in most common use is sulphur, and I think it is, on the whole, the most certain, its only disadvantages being that it is very irritating and smells rather strong when heated by the body. The ordinary ointment of the pharmacopœia is quite efficient, and a few drops of oil of lavender will mask the smell fairly well. Some add to this 10 to 25 per cent. of soap, either in the form of powdered Castile or soft soap. It certainly aids in the decorticating process, but it renders the treatment a good deal more severe. A nicer method is to use a 5 per cent. mixture of sublimed sulphur with "Mollin," a neutral soft soap containing a large percentage of glycerine. This has the advantage of washing easily out of underclothing.

Since the war, increased experience has led me to use the following formula:

℞ Cyllin .. .. ℥xx.
Ung. sulphuris .. .. ad ℥i.

This has the advantage of being slightly more efficient in killing the parasites and much more antipruritic. Moreover, the tar action of the cyllin seems to diminish the number of cases of sulphur dermatitis.

β-naphthol has many friends in the treatment of scabies, as it is absolutely clean and odourless, and causes only very slight irritation or none at all; it is generally prescribed in the ointment originally devised by Kaposi (chalk 10 parts, β-naphthol 15 parts, soap 50 parts, and lard 100 parts). It is recommended that it be used for a single inunction and not washed off for a week, but I have satisfied myself that this is not enough, and that relapses are far more frequent than with the sulphur. Cases of poisoning from its absorption have been recorded.

Balsam of Peru and styrax are also useful drugs, the latter being made up in many hospitals as a stock ointment from the formula: Styrax 1 part, rectified spirit 1 part, lard 4 parts. It is very useful for young infants whose skin is too delicate for sulphur. Balsam of Peru may be made up simply by incorporation with lard (10 per cent.), and is a safe remedy, though cases of intoxication have been recorded.

In all cases the patient must be watched for a fortnight after treatment, in order to be certain that no ova have escaped destruction.

A point of great importance, however, is to remember that although itching ceases in the majority of cases with the destruction of the acari, this is not invariably the case. Patients must be instructed not to continue with the parasiticide if itching persist, unless it can be made out that this is due to a return of the disease. In cases where no signs of irritation of the skin are obvious it may be permissible to allow a second cycle at the end of a week, if in doubt, but where there are obvious eczematous complications it is to be prohibited, since the itching is probably produced by the eczema, and this will be still further aggravated by further application of irritating drugs. The wiser plan, therefore, will be to prescribe some soothing lotion or ointment, such as calamine lotion with 1 per cent. liq. picis carbonis or zinc cream with a little added camphor. This will allay the artificial dermatitis caused by the parasiticide treatment, and

a few days will show whether underlying the itching there is any real recrudescence of the original disease.

It is worthy of mention that other forms of acarus may affect the human being, the chief of these being that which is the cause of the so-called sarcoptic mange of the dog. It is difficult to say whether this is the same parasite as that affecting the cat, but I believe the opinion of veterinaries is that mange in the cat and dog is transmissible from one to the other, and that the same parasite causes both. It is usually caught by human beings who are attending the dog, and if the disease is not recognised in the canine patient, but simply styled eczema, the master may be continually reinfected. The disease, when once seen, is easily suspected, as one finds a picture practically identical with that of scabies, without the presence of a single cuniculus, but with the affection of the face. A single rub of sulphur ointment or any of those recommended for scabies is sufficient, and the disease apparently dies out by itself in about six weeks if the source of infection is removed. I have never succeeded in finding one of the parasites in the human being, partly because, as there are no runs, one is at a loss where to look. The contents of about fifty vesicles did not yield one.

Two other diseases of acarian origin are worthy of short mention, though neither is common in this country.

The first is "grain itch," an acute papulo-vesicular eruption of the body and limbs in persons handling infected grain, and due to the Pediculoides ventricosus. The second is "copra itch," a similar affection seen in persons handling infected copra, and due to Tyroglyphus longior. Both cause very furious eruptions, which die out shortly if the source of infection is removed, but do not yield so quickly to antiparasitic remedies, as the symptoms are due apparently to the bite rather than the actual burrowing. The parasite has not, to my knowledge, been found in the human skin.

Another form of acarus, the Demodex folliculorum, is occasionally found on greasy skins devoid of other lesion. It has also been described in association with aberrant types of acne, with discoloured patches on the skin, and I have found it in some cases of circinate impetigo (see p. 22).

Rarely occurring Parasites and those of Hot Countries.

Chigoe Disease.—This disease does not occur in this country, but it is found in Central America, Africa, and China. The parasite (*Pulex penetrans*) belongs to the insects, and the female burrows into the skin, generally of the feet, laying her eggs there and causing an irritable tumour followed by suppuration. The treatment recommended is the extraction of the female with a blunt needle, care being taken not to rupture the abdomen and liberate the ova. The use of antiseptics for the syringing of any abscess cavities, and the disinfection of the surface of the feet, is obviously a necessity.

Myiasis.—Many stinging and other forms of fly have produced suppurative disease under certain conditions, and in hot climates superficial wounds, when neglected, have often become invaded by parasitic larvæ. Antiseptic treatment is all that is required.

Cysticercus cellulosa occasionally occurs generalised beneath the skin in man, and though it is not, strictly speaking, a skin disease, situated as it always is in the subcutaneous tissue, some notice of it is advisable, as it may be confounded with tubercular nodes or other deep nodose skin diseases. The symptoms are limited to the nodes themselves, which appear as tense, elastic cysts, freely movable under the skin and over the fasciæ, causing no pain or discomfort. The only case I have ever seen was in a patient who had been long in Burma, where the disease is apparently commoner than in this country.

Common Occasional Parasites—The Flea, the Bed-Bug, and the Harvest-Bug.

These parasites are so well known that it is hardly necessary to make any mention of them. The bite of the flea is followed usually by a lentil-sized urticarial wheal of pink colour, and in the centre of this is a small circular hæmorrhage about a millimetre in diameter. After a few hours the urticarial wheal subsides, leaving a patch of bright red hyperæmia to mark its site, and this may persist for a day. Careful attention will eliminate error, but it is to be remembered that on

STON MEDICAL
MAY 1 2 1921

many occasions numerous flea-bites have been mistaken for more severe diseases.

The bite of the bug is followed also by an urticarial wheal, but it is of larger size, and, owing to the furious itching set up, usually becomes excoriated at once by the finger-nails. There is then left no characteristic lesion for the foundation of a diagnosis, but it is well to remember that intense pruritus recurring at night, or in a certain room, and localised to the arms below the elbows, the throat, and the legs below the knees, is likely to be the result of the bed-bug.

Harvest-bug, or *Leptus autumnalis*, is in reality a minute spider, just distinguishable by the naked eye, and of a bright coral red colour. It is picked up when walking or sitting in the fields, and especially in August and September, and in chalky districts. The rash comes on usually in the evening, and the symptoms may vary from intense pruritus alone to a really petechial eruption like a mild attack of purpura. The history of the occupation immediately before the outbreak is usually sufficient guide to a diagnosis. The best treatment is prophylactic, since, if the skin is anointed with a little sulphur ointment or eucalyptus oil before going out, the parasite will not attack it. Some people are quite immune to the harvest-bug.

CHAPTER IV

DISEASES DUE TO VEGETABLE PARASITES OTHER THAN BACTERIA

I. Ringworm.

The parasite of ringworm belongs to the group of Hyphomycetes, or moulds. Owing to the researches of Sabouraud we know that several varieties of ringworm fungus attack the human epidermic structures, and although there is some disagreement as to their exact position, it will be convenient to follow Sabouraud's original classification and divide them into three main classes—namely:

A. The Microsporon Audouinii.
B. The Trichophyton megalosporon ectothrix or endoectothrix.
C. The Trichophyton megalosporon endothrix.

Further reference will be made to these varieties under the various lesions caused by them.

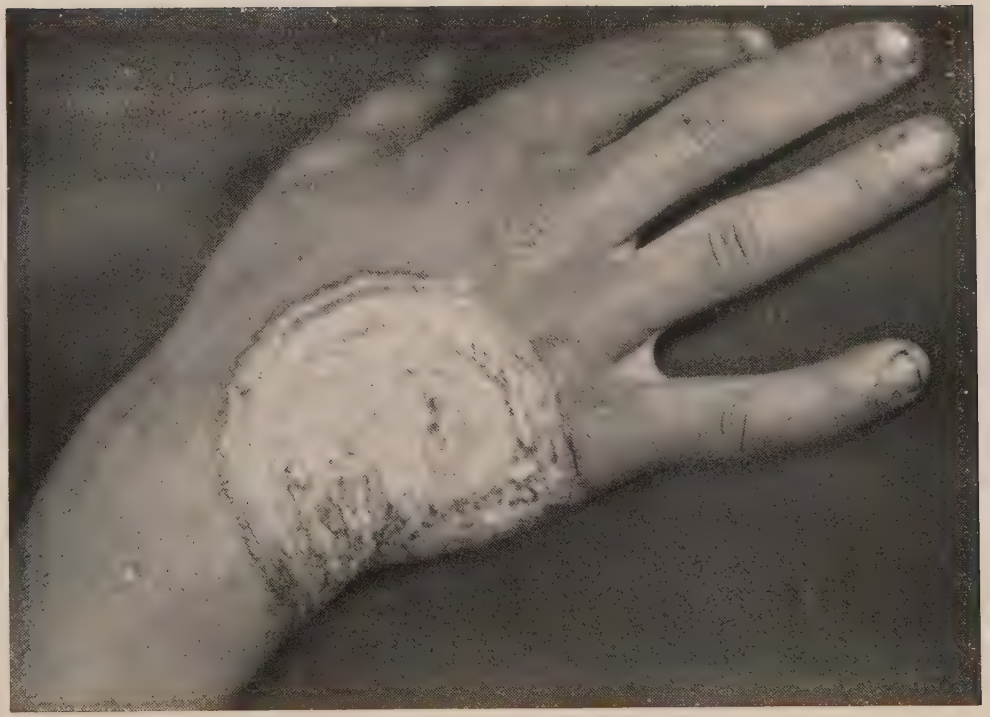
The ringworm fungus is limited in its invasion to the epidermis and its derivatives, although the inflammation it causes may, of course, affect neighbouring parts. The Granuloma trichophyticum described by Majocchi, in which the fungus is supposed to infect the corium, has not been recognised in this country, and does not appear to rest on sufficient evidence to demand its acceptance.

The parasite occurs in four main situations—namely, the surface horny layer, the hair of the scalp, the hair of the face, and the nails—and as each forms a distinct clinical entity it will be dealt with separately.

Ringworm of the Surface Epidermis (Tinea Circinata).

Symptoms.—The eruption occurs in the form of:

1. Small patches, $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, of pinkish-red congestion, with slight elevation of the surface, covered with



TINEA CIRCINATA. ECTOTHRIX FUNGUS DERIVED FROM CALF
(Note the Concentric Circles)

a fine scale which, when detached, reveals the presence of the fungus under the microscope. This form is caused by the microsporon, and is seen commonly on the necks and faces of children with scalp ringworm, and occasionally on the arms of those attending to them.

2. Fine rings from $\frac{1}{2}$ to 3 inches in diameter, the centre only very slightly pigmented, otherwise normal, the edge bright red, raised into scaly papules or minute vesicles, usually about $\frac{1}{16}$ to $\frac{1}{8}$ inch in diameter. Single or multiple rings are common in any position among those who run the risk of infection. The rings may be arranged in circles within one another in cases where the infection has not quite died out, so that recrudescence takes place. This form may be due to either microsporon of animal origin or endothrix fungus.

3. Small or large discs of severe inflammation, with the formation of a thick, œdematous cushion beset with vesicles or pustules. Usually two or three such patches lie fairly close together. This form is due to the ectothrix fungus, and is not common except in persons dealing with cattle, from which the parasite is in all probability derived. It has been dignified with a special name, "agminate folliculitis," but this is unnecessary, and was given before the nature of the disease was known. It is probably identical with the Granuloma trichophyticum of Majocchi and Trichophytosis profunda of the German authors. The parasite in this variety is often difficult to find, but by drawing the lanugo hairs of the patch and expressing some of the pus that wells up the fungus can usually be detected in one or the other.

4. Eczema marginatum (*Tinea cruris, Epidermophytosis inguinalis*). This is really a form of ringworm appearing usually between the thighs and scrotum, but also sometimes affecting the axillæ. It is not very uncommon in this country, but is far more frequent in the tropics, probably owing to the profuse sweating. It is known in India as Dhobi (*i.e.*, washerman's) itch, owing to the prevalent belief that it is due to infection of the underclothes during the washing, but this term is applied to any form of circinate ringworm in the tropics. In eczema marginatum the symptoms are those of a curtain-like, irritable, red, and sometimes weeping eruption with an extremely defined edge; hence the name. The edge is vesicular

or pustular, and the examination of scabs, scales, and pus reveals the parasite. The only peculiarity worthy of note is its superior resistance to treatment as compared with the other forms of superficial ringworm. The parasite, which is easily identified by cultural characteristics, and especially its form of fructification, has been described by Castellani and Sabouraud, and is now classed as Epidermophyton from the fact that it does not invade the hair. At least three varieties have been described.

5. Eczematoid ringworm of the feet and hands (*Epidermophytosis pedum et manuum*). This is a phase of epidermophyton infection in which the disease has become localised, most commonly between the toes, but also occasionally on the soles, the fingers, the palms, and the nails.

In 1892 ringworm was found in dermatitis of the soles by Djellaludin Mouktar, but Sabouraud says that this was not the disease under discussion, and Djellaludin Mouktar was of opinion that the cases were eczema upon which a ringworm had become engrafted.

In 1908 I found a series of cases in which there occurred the characteristic localisation, but failed to grow the fungus. At this time I pointed out that it was not sufficient to make the diagnosis of intertriginous eczema between the toes, but that it was necessary to examine scales and the roofs of vesicles in order to determine the presence or absence of fungus.

In 1910 Sabouraud, unaware of my discovery, published an article on the same disease, and showed that it was due to the Epidermophyton inguinale.

The characteristic localisation of this disease, as I first pointed out, is between the toes and up to the heads of the metatarsal bones. The eruption is really marginate, but owing to the complex arrangement of the toes the circular outline is confused. Sometimes it may burst out as an apparently acute eczema with swelling and marked vesicle and bulla formation; at others it may show as an indolent scaling, with a few deeply seated vesicles at the edge. The clefts between the toes show a white, sodden, horny layer, and a distinct margin runs in a more or less wavy line along the level of the heads of the metatarsal bones. Sometimes ill-defined patches of vesicles and scaly dermatitis are present

on the sole, especially in the hollow of the instep. The hands are affected in a manner similar to that of the feet. When the nails are affected, which is much less frequently the case, the brunt of the attack falls on the nail bed, which develops a brownish hyperkeratosis, so that the nail plate is lifted off it. The nail plate itself may become reedy, discoloured, and friable. I am not certain whether actual invasion of the plate itself occurs, as it is difficult to be certain whether the fungus found in scrapings lies on or in the nail plate.

Septic infection is common, and lymphangitis may occur, so that some of my cases have been treated for years for gout and gouty neuritis. The disease often becomes quite latent in cold, dry weather, resuming activity in hot and moist weather, when sweating occurs, so that a more or less seasonal variation occurs, giving rise to the diagnosis of dysidrosis.

The contagiousness is very capricious, one of my cases having had the disease for over two years in one foot before the other became infected, although from ignorance as to its nature no active precautions were taken.

I have given considerable space to the discussion of this disease because, since the war, it has become really common, and owing to the prevailing ignorance as to its nature is likely to become much more so in the future. Treatment is considered with that of the other forms of fungus affections later.

6. Bowditch Island or Tokelau ringworm (*Tinea imbricata*). This is a curious form of tropical disease, which is placed here, although it is not certain that the parasite belongs to the ringworm family. It occurs in concentric rings all over the glabrous skin, and by the spreading of these the whole surface becomes covered with wavy, scaly lines, giving an appearance which has been likened to that of watered silk. Itching is usually a marked feature.

Diagnosis.—The chief diseases which may be confused with tinea circinata are seborrhœa corporis, circumscribed forms of eczema, impetigo contagiosa, psoriasis, pityriasis rosea, and occasionally a circinate squamous syphilide. From all of these the diagnosis may be finally established by the detection of the fungus microscopically, but there are also clinical distinctions. Seborrhœa corporis is only found on a greasy type of skin, and has special sites of predilection—the sternal region,

shoulders, etc.; it does not usually form such perfect circles, and there are usually outlying follicular papules to help the diagnosis.

Circumscribed forms of eczema are sometimes very difficult, but the margin is seldom as abrupt as in the tinea, the circle is less perfect, the duration longer, and the extension less rapid and regular. Impetigo is distinguished by the more evenly bullous edges and the heavier crusts. Psoriasis has marked sites of predilection, the scales are more silvery, there is no trace of even the most abortive vesicle present, and the scales may be lifted in a mass, leaving a shining surface beneath, which readily bleeds on the slightest roughness. Syphilides are usually much slower in development, and show the characteristic deep infiltration produced by the poison in the corium. Pityriasis rosea is occasionally very difficult to distinguish, especially when only the first, or "herald," patch is present. The diagnosis in this stage must lie in the presence or absence of fungus among the scales.

Scalp Ringworm (Tinea Tonsurans).

Symptoms.—The commonest type of ringworm of the scalp begins as a minute scurfy and slightly pinkish spot, the scales being somewhat thicker and more cretaceous than those of the ordinary scurfy head. In a very short time a few broken hairs or stumps may be seen, and the affected area enlarges centrifugally. There is thus produced a circular patch of greyish scurf with a slightly pinkish, raised, and well-defined margin. Within the borders of the patch some or all of the hairs are broken off, usually at a distance of about $\frac{1}{8}$ inch above the surface. These broken hairs or stumps form the diagnostic point of ringworm. They are usually slightly twisted, and if turned back against the line of growth they fail to return at once to their original position, showing a loss of elasticity. In colour they vary, in dark-haired children generally showing up lighter than the normal hairs, whereas in fair children they may appear darker than the normal. On close examination they are found to be without the proper polish, and to be covered with a fine chalk-like deposit, which is rendered much more evident by soaking the hair for a



KERION RINGWORM

moment in chloroform. It is difficult and usually impossible to draw these hairs entire, as they break with a little characteristic click on applying any tension. Microscopic examination reveals the fungus in great quantity.

As time goes on, if the case be untreated, the disease spreads rapidly all over the scalp, so that the original circles are lost, and as at this time there is usually a good deal of new growth of hair which appears to be partially or entirely resistant to the fungus, the scalp generally acquires an ill-nourished, moth-eaten appearance. Stumps are, as a rule, still easily found, but there will also be seen longish, twisted, and very pointed hairs, which on examination prove to be full of fungus and break on epilation.

In some cases where the treatment has been fairly efficient, but the case has been dismissed as cured before the disease has been entirely eradicated, there will be found only rather indefinite patches of thickish scurf with a few of these pointed hairs scattered over the head. Careful search *beneath* these scales will, however, almost always result in the discovery of the stumps, and it cannot be too strongly stated that in a child **any marked scurfiness of the head should be regarded as ringworm until the most careful search and microscopic examination have failed to find any evidence of the disease.** Also, in any case of known and treated ringworm the presence of marked scurfiness is to be regarded as a sign of persistence of the disease, and no case should be allowed to pass as cured until the scurfiness has been subdued, so that it does not recur after the cessation of all treatment for one month. The type above described forms at least 90 per cent. of cases of English ringworm of the scalp, and is almost without exception due to the microsporon fungus, the very few exceptional cases being due to the endothrix.

The next type, which is not so very uncommonly seen, is the pustular type, an exaggeration of which is termed kerion. In the pustular type there may be either one or more largish patches, in which almost every follicle is the seat of suppuration, or there may be minute groups of five or six indolently pustular follicles scattered all over the head. In the former case the inflammation may run high enough to convert each patch into a raised, boggy, fluctuating, purple area, with pus

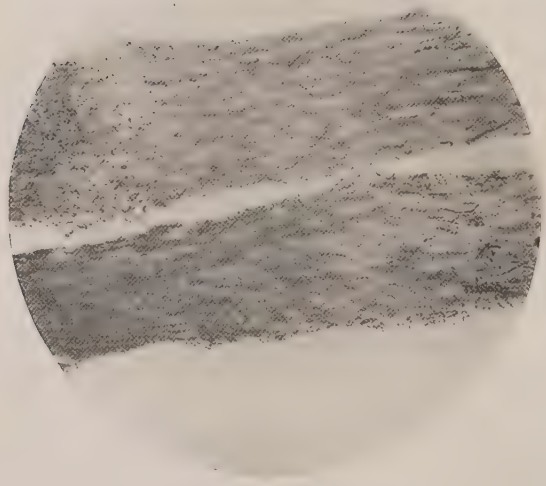
running from the patulous follicles, and this is the condition which is known as "kerion." The most important fact to note about this is that the inflammation has a very beneficial result, and on no account should the swelling be incised. It is also worthy of note that in some of these extremely inflammatory forms the hair is not broken at all, so that stumps are not characteristic of the disease. In most cases, however, and in all those in which the inflammation is confined to a pustulation of a few follicles, there are stumps to be found on careful search. These varieties are usually due to one of two classes of fungus—the small pustules to the endothrix, and the kerion most often to the ectothrix, but fairly frequently to the endothrix, and much more rarely to the microsporon.

Lastly, mention must be made of a rare form known as bald or "black dot" ringworm. In this variety the first glance would suggest a rather irregularly shaped patch of alopecia areata. More careful examination, however, reveals the fact that the hair has not fallen out, but broken off short at the aperture of exit. Often a few badly nourished, pointed hairs are found round the margin, and if these are pulled it is found that they readily break and reveal the endothrix fungus under the microscope. If no such long, diseased hairs are to be found, some of the black points corresponding to the broken hairs must be dug out with pointed forceps or other sharp instrument and examined. The fungus present is always the endothrix.

Ringworm of the Beard.—Two main types are seen—namely, one in which there are obvious small areas of reddened, scurfy skin with broken hairs readily suggesting ringworm, and easily detected by the presence of the fungus in the scales and stumps; and the other, in which large, fleshy swellings are produced, the surface of the swelling having an indolently pustular appearance. It is a curious fact that ringworm seems very rarely to affect the hair of the moustache. The fungus present is usually the endothrix (variety Trichophyton violaceum and rarely rosaceum) in the scaly variety, and almost invariably the ectothrix in the nodose form. The latter is particularly often due to a variety which attacks the horse, and is fairly frequent among those who have much to do with horses.

ENDOTHRIX RINGWORM OF THE HAIR
(Note the intact Cuticle of the Hair Shaft.) X 600





MICROSPORON RINGWORM OF THE HAIR
(Note the Erosion of the Cuticle.) X 300

Description of the Fungus in the Hair.—The microsporon grows freely within the hair shaft and around it in the internal root sheath. Within the shaft it occurs as long chains of mycelial elements of a narrow cylindrical shape, terminating just above the root of the hair in a fringe. On the surface of the hair, and between it and the internal root sheath, it occurs as a mass of round or angular bodies—so-called spores—which form a complete mosaic over the surface. The cuticle of the hair is rough and eroded.

The ectothrix fungus also grows both within the shaft and in the root sheath. The amount of fungus within the shaft varies much with different cases, and probably with the subvariety of the fungus. In some the interior of the hair is packed with small mycelial elements, either round or cubical in shape, but showing a more or less definite arrangement into chains. The root sheath is also more or less full of these chains of short mycelial elements, which wander in the most fantastic manner over the surface of the hair. The round elements are usually considerably larger than those of the microsporon, and it is from these that the fungus derives its name of Megalosporon ectothrix. The cuticle of the hair is slightly or not at all eroded.

The endothrix fungus resembles within the hair that of the ectothrix so closely that the distinction between the two was for some time denied by many. The great difference between them lies in the fact that in endothrix disease either no elements are found outside the hair, or perhaps a very small number—so small, in fact, as always to give rise to suspicion that they have arrived there by transference in putting up the preparation. The cuticle is not eroded, but the hair is so stuffed and eaten out by fungus from within that it is usually more brittle in this than in any other form of ringworm.

Age Incidence.—The microsporon affects the hair of children only, and dies out by itself as a rule at the age of sixteen. It is true that it is now and again seen in adults attending upon children affected with the disease, but this is rare, and the disease in adults never offers any difficulty in the matter of extermination. The ectothrix appears also to be generally confined in adults to the beard region, the glabrous skin, and

the nails. The endothrix persists in a definite number of cases, but as it is rare in this country it is difficult to state at what age it usually disappears. It would seem that, uncommon as it is, it must die out, as adult cases are so extremely rare, though when found they seem to offer exactly the same difficulties in curing as do children.

Ringworm of the Nails (Onychomycosis Trichophytina).

This is probably more common than is generally supposed, since it is often only by the most careful microscopic examination that the fungus can be detected. The disease may either spread from beneath the free margin of the nail down into the nail bed, causing a separation of the nail plate from its bed and the interposition of a vast amount of horny hypertrophy of the latter, or it may extend from the skin at the root of the nail, so that it creeps into the posterior fold and attacks the matrix, in which case the nail plate becomes deformed throughout.

Symptoms.—The characteristics of the well-developed disease are roughness, irregularity, and greyish or yellow discoloration of the nail plate with great friability, and thickening of the nail bed and posterior nail fold, with slight reddening and scaling. The disease should not be mistaken for the pitting and grooving of the nail in constitutional disease, but it is probably impossible to differentiate it from chronic septic onychia without the use of the microscope. To this end it is necessary to take scrapings of the nail and the skin from beneath it, to soak them for some time in liquor potassæ, and then to examine them under $\frac{1}{6}$-inch objective. It is often necessary to repeat the procedure several times before the fungus is found, and if any large portion of the nail plate is detached from the bed it is advisable to cut it off and leave it soaking in potash all night, and then examine the pulpy mass so obtained next morning. The varieties of fungus found are the endothrix, ectothrix, and rarely the epidermophyton.

II. Favus.

This disease is rare in London and England generally, but is more common in the North and in Scotland. In London it is almost confined to Jewish immigrants.



ECTOTHRIX RINGWORM OF THE BEARD SHOWING FUNGUS IN THE ROOT SHEATH
X 400



RINGWORM OF THE NAILS

Two main varieties are known: the Achorion Schoenleinii and the Achorion Quinckeanum. The former chiefly affects the head, and grows in culture as cheesy masses; the latter is chiefly found in the glabrous skin, and grows in the form of a downy white culture. Both form scutula, but the latter also causes a scaly dermatitis. The animals affected are chiefly mice, cats, and birds.

Contagiousness is not so great as in ringworm, and this is probably to be accounted for, in part at least, by the fact that in favus the hairs do not break, and therefore small infective particles are not scattered abroad so much.

Symptoms.—On the glabrous skin favus appears as a small, red, and scaly area, which assumes after a short time the appearance of a circular yellowish crust. Usually only one or two lesions are found, but in some cases the whole body has become covered with yellow, sulphur-like masses. Favus may also attack the mucous membranes, and a case is recorded in which death supervened and favus of the stomach wall was discovered post mortem.

On the scalp favus may occur in the form of localised scaliness, in which the scales are of a greyish colour and very thick. More characteristically, however, it occurs as minute yellowish points surrounding the hair, these points rapidly enlarging to $\frac{1}{4}$ inch or more in diameter, sinking down in the centre, and developing a bright, sulphur-yellow colour, thus constituting the typical "favus cup" or "scutulum." The yellow material consists practically entirely of fungus, and lies beneath the horny layer, unless by violence this has been broken. From the pressure exerted a true atrophy of the surrounding parts is produced, so that scarring results, with permanent loss of the hair involved. The hair itself is attacked, but is not rendered friable, as in the case of ringworm. On pulling at a hair in the infected region it usually comes out entire, bringing with it the external root sheath in the form of a grey, but not very moist or transparent, covering. Examination under the microscope reveals the presence of plentiful straight or wavy lines of fungus, usually in oblong joints running up the hair shaft, and the root sheath is packed with spores of all sizes and odd-shaped mycelial fragments. **The presence of patchy baldness of the head, associated with**

scaliness and scarring, should always suggest the possibility of favus, and the diagnosis may easily be established by the use of the microscope.

Favus of the Nails.—This is a very rare affection, and resembles very closely ringworm of the nails. The affection is, however, more apt to be characterised by the appearance of bright yellow spots beneath the nail.

Treatment of Ringworm and Favus.

The treatment of ringworm and favus being on precisely similar lines, it will save repetition if the two diseases are dealt with together under their regional varieties.

Ringworm of the Glabrous Skin.—Usually this presents no particular difficulty, and mild cases may be cured at once by scrubbing thoroughly with a piece of flannel dipped in spiritus saponis kalini (soft soap 2 parts, dissolved in rectified spirit 1 part), and then painting with equal parts of liquor iodi fortis and tincture of iodine.

In the deep pustular ringworm of the agminate folliculitis type this will not be sufficient, and one of the following methods may be applied:

(1) Applicable only to parts where there is not much downy hair.

Paint the patches over with—

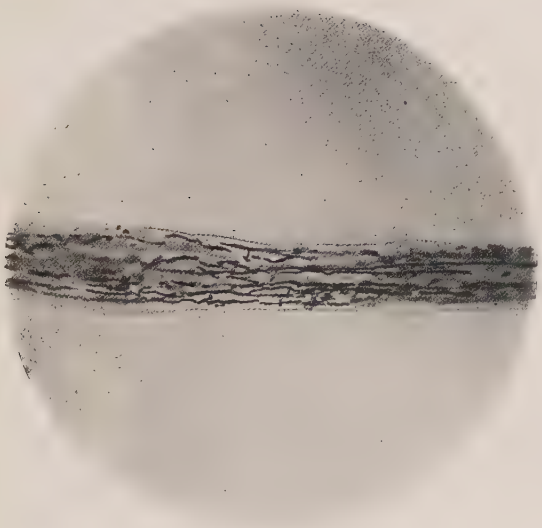
℞ Chrysarobini .. .. ʒi.
Ether Sulphuric. } .. .. .. āā ʒivss.
Acetone }

Allow to dry, and then apply a piece of strapping rather larger than the painted area. The strapping causes some maceration by locking up the perspiration, and this carries the chrysarobin deeply into the skin. Usually a single application left on for four days is sufficient.

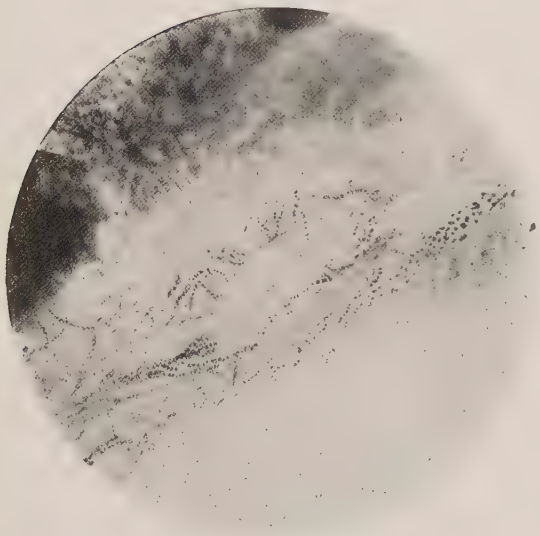
(2) ℞ Unguenti chrysarobini .. .. .. ʒi.
To be rubbed in for some minutes, and covered with a piece of lint.

This is suitable for downy skin also.

(3) ℞ Acidi benzoici .. .. gr. xxv.
Acidi salicylici .. .. gr. xv.
Paraffini mollis .. .. ʒii.
Ol. cocois nuciferæ .. .. .. ad ʒi.
To be rubbed in twice a day for a week.



FAVUS IN THE HAIR SHAFT. X 300



ENDOTHRIX RINGWORM OF NAIL. X 400

Some care should be taken not to go on too long, as this ointment, though apparently mild, sometimes sets up a superficial dermatitis after a time.

In the case of the epidermophyton infection of the groin either chrysarobin ointment or the above salicylic and benzoic acid ointment is very efficacious, but great care must be taken to have the underclothes disinfected and to see that any recurrence is immediately treated, as the infection is very resistant. I generally recommend now the wearing of a pair of ordinary cotton bathing-drawers during the treatment, as it saves both the staining and infection of the underclothes. Two pairs are needed, so that one can be boiled each day.

When the infection has reached the toes the problem is immensely more difficult. The very thick horny layer between and beneath the toes and on the sole of the foot renders it almost impossible to get the parasiticide in contact with the fungus. Great care should be taken to trim away all flaps of frayed skin and remove the roofs of any vesicles and pustules. The treatment should then be applied and renewed daily. Recent cases are much more easily cured than the old established, and generally yield to ten days' treatment with chrysarobin ointment. In old-established cases I have found the following alternation useful: The skin, after trimming up, is painted with the above chrysarobin solution and allowed to dry, and then a pair of cotton socks is put on. In the evening this is washed off and the feet dressed with the benzoic and salicylic ointment, which does not stain the bedclothes, but softens down a lot of the epidermis. Next morning this is washed off, the skin again trimmed, and the paint reapplied, afterwards putting on a second pair of socks while the first is being boiled. Even with this treatment the case may persist for months.

Another method that I have occasionally found useful is to soak the feet for ten minutes in 2 per cent. watery copper sulphate solution, and then without drying transfer them into a 1 in 20 dilution of liquor ammoniæ fortis, thus making ammonio-cupric sulphate in the horny layer.

Ringworm of the Scalp and Beard.—In order to obtain a right conception of the principles of treatment of ringworm of hairy regions it is necessary to remember always that the

fungus grows actually in the hair shaft as well as deep in the follicle where no parasiticide at present known can follow it in a strength sufficient to cause its death.

It is an axiom in the treatment of ringworm of the hairy parts that **success is only obtained by causing shedding of the whole hair.** The new hair which sprouts beneath is separated for some time by a layer of living epidermis which the fungus cannot pass, and therefore, if after the old, infected hair has been shed, and before the new one has burst through this layer, the disease be eradicated from its superficial seat, there will be no chance of infection of the new hair.

The methods of doing this comprise exposure to the X rays and the use of irritating applications which are generally also strong antiseptics. It must, however, be clearly understood that these applications act by producing inflammation and shedding of the hair, and not by killing the fungus in the hair shaft and the depth of the skin.

1. *Treatment by Means of the X Rays.* These have the advantage of being practically certain in their action, painless, and rapid. If the treatment has been properly carried out the hair will fall on the fifteenth to the eighteenth day, and the case will be cured in six weeks from the commencement of treatment, though the baldness will last for a further six weeks. The disadvantages are that the dose must be very carefully measured, and to secure this the distance must remain constant to within $\frac{1}{8}$ inch. A restless child will therefore defeat the most skilled operator. If the dose is insufficient the whole of the infected hair does not fall, and practically the time is wasted. On the other hand, a moderate overdose means that the hair will be lost for life. It is therefore necessary that this treatment should only be used by very skilled operators, or severe accidents will surely follow.

The method of using the X rays, now almost universally adopted, is that of measurement of dose by means of the pastille of Sabouraud and Noiré, and the distribution of the dose by means of Adamson's "overlap" arrangement. The Sabouraud pastille is a small disc of specially prepared platino-cyanide of barium, which is inserted half-way between the scalp and the anticathode in such a way that it is fully exposed to the active rays. The carton in which it is sold carries two tints, one

matching the unexposed pastille, and a second (tint B) showing the colour, which must be matched in order that the scalp may receive a sufficient dose to cause the hair to fall out, and yet not enough to cause a permanent baldness. It is perhaps well to give the warning that both the tint B and the pastilles should be supplied by Drault of Paris, as I once had some forgeries which caused disastrous baldness. As an alternative to tint B one may use with perfect safety the Corbett tinto-

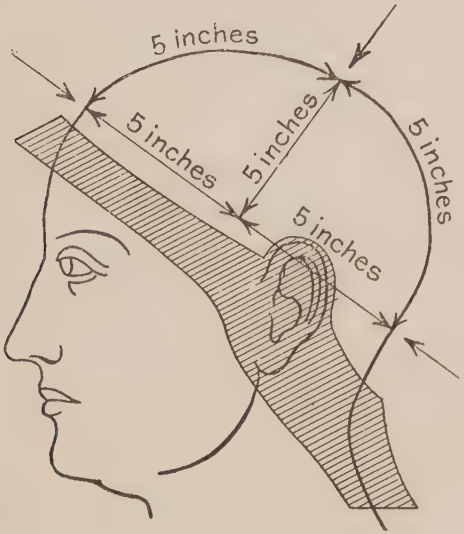


Fig. 1.

meter, which is more permanent, has a series of fractional doses, and also tints for use with artificial light convenient for the short and dark days of winter.

Adamson's method of distribution of the rays is shown in the accompanying diagram. A point is taken nearly at the vertex of the scalp in the middle line; a second is taken 5 inches in front of this, nearly on the anterior margin of the hair; a third in the nape of the neck, also 5 inches from the first and in the middle line. A fourth and fifth are taken immediately in front and above the ear on each side of the scalp, at a distance of 5 inches from each of the first three points. Lines are then drawn with a grease pencil to join these points, and

the central axis of the rays is directed along these lines and not corresponding to the curvature of the cranium. The forehead, ears, and nape of the neck are protected with suitable material, but no other delimiting protection is used, as the figure is arranged so that the overlap gives exactly the right dose over the parts most distant from the numbered points. The whole head should be done at one sitting, and the procedure takes about an hour and a half. It is well to mark with the grease pencil each area after it is exposed, as I have known of a case in which the same side was exposed twice and the other left unexposed, this resulting in a severe radio-dermatitis and permanent destruction of the hair on one side, and, of course, a failure to cure the ringworm on the other.

After the exposure the scalp should be kept well covered with some fungicidal application, and for this purpose I find nothing better than the mild benzoic and salicylic ointment given above. The hair falls on some day between the fifteenth and eighteenth, and continues to fall for about four weeks. As soon as complete baldness is produced, and all sign of ringworm has disappeared, the case may be signed up as cured, but I prefer to wait until the end of the second month before doing so.

The carrying out of this treatment is anxious work, and I do not employ it in children under four years of age. It is, I believe, the only method which gives even a moderate hope of cure in established favus, and in this it is absolutely successful.

2. *Treatment by Other Methods.*—In cases where for some reason or other the X rays are not applicable, the next best treatment is undoubtedly that of croton oil. It may be divided into patch treatment and stump treatment. Its advantage lies in the fact that, properly employed, it will cure practically any case, and its disadvantages are that it is dirty, painful, and tedious, and requires very special skill and attention on the part of those in charge of the child.

If the ringworm still exists in the form of patches on the head, each patch is painted over with a single drop of neat croton oil, or thoroughly rubbed with an ointment consisting of 1 drachm of croton oil mixed with an ounce of lard, the

unaffected portions of the head being kept well coated with a 10 per cent. oleate of mercury ointment.

Next day the part will be found red, inflamed, and covered with small vesico-pustules, and these must be carefully opened and drained, and well bathed with hot water, after which the croton oil is again applied. Particular attention must be paid to this bathing to avoid the accumulation of crusts, under which suppuration would occur, with possible scarring and consequent loss of hair. The treatment is continued until either the whole patch swells up and becomes œdematous, resembling closely what may be termed natural kerion, or a deep serous folliculitis is formed, which loosens the hair so that it may be drawn without breaking. Daily search for loose hairs must be made with the epilation forceps, and, if necessary, the bathing must be carried out more than once a day. A moderate amount of adenitis is usually set up from the inflammation, and a sharp look-out must be kept to see that this is not allowed to develop too far. Also a careful inspection of the cleaned-up skin must be made, and the slightest whitening of the part, indicating commencing slough formation, is taken as the sign for temporary cessation of treatment.

In many cases the ointment of 1 drachm to the ounce of croton oil will be found inefficient, and in such the strength may be gradually raised until the required effect is produced. In favourable cases all the hair from each patch may be removed in this way, but in most some few stumps will be found to have resisted treatment, and the case then becomes reduced to what, for convenience, I may call a stump case. It is obviously unnecessary now to put the child to the pain and inconvenience of further painting or inunction, and so one may pass on to the needling method. This consists of the introduction into the depth of each follicle of a needle dipped into pure croton oil. Many different forms of instrument have been used, but I find nothing so easy and efficacious as an ordinary very fine sewing-needle (No. 16), which is bent at an angle of 45 degrees in the spirit-lamp flame, and the eye end of which is used. This has two manifest advantages: First, that the eye end, being tapered but not pointed, is very easy to introduce, and has little tendency

to wander through the wall of the follicle when once engaged in the mouth; and, secondly, still more important, the eye invariably retains a small amount of the oil at the end, an advantage which all those who have had difficulty in retaining the oil at the point of a plain needle will at once recognise. Most of the hairs thus needled may be drawn in a few minutes after the needling, and it is undoubtedly a good plan, as Aldersmith suggested, to colour the oil with methyl violet, so that one may recognise which follicles have been needled. A point of importance is to remember that it is practically impossible to make a successful shot at the follicle if there is a scale lying at the point of emergence of the hair to be needled. The removal of this scale without breaking the hair may be a matter of difficulty, and must be effected with the greatest care. If the scale be moistened with a little water, or preferably a weak solution of lysol, and then grasped at its edge and gently peeled up, it will usually slide up the stump without breaking it, and its entire removal is not necessary, so long as it has been displaced far enough to enable one to see the mouth of the infected follicle clearly.

By means of these two methods of croton oiling the most obstinate case will progress steadily, even if slowly, to a cure, and there is absolutely no risk of intoxicating the child with some poisonous drug. The essentials are only the daily watching of the skin and the careful cleansing with hot water. Personally, I have used for some time, when employing the method at all, a 2 per cent. solution of lysol for all cleansing purposes, as it has a wonderful effect in softening off crusts that may have formed in the night, and I do not agree with Aldersmith's original statement that antiseptics limit the effect of croton oil in an undesirable manner. They do, it is true, limit the suppuration, but this is precisely what one wants, and it should always be borne in mind that the ideal to attain is a serous and œdematous inflammation, and not a purulent one.

Apart from these two forms of treatment, there remains a host of prescriptions which have been used with success in some cases, but all may fail. I would especially mention the daily rubbing with liquor iodi fortior, a method which is often successful in very early cases, and the use of 10 to 50 per

cent. of oleate of copper in lard, which is cleanly, practically painless, and often efficient, loosening up the hairs and producing the right kind of alopecia. Another favourite prescription of mine, for cases which cannot get the close observation which is necessary for croton oil, is the official nitrate of mercury ointment to which 10 per cent. of salicylic acid has been added. Chrysarobin has its advocates, but I personally do not like it. It is very dirty, extremely risky near the eyes, and, above all, I find it very much the reverse of uniformly successful. If used, I think it is best to shave the part and some of the surrounding skin, and to apply it by means of the chloroform and strapping, as detailed under the treatment of tinea circinata.

Some greatly praise the use of equal parts of salt and vaseline well rubbed in daily, with a good hot water bathing a few hours later. This method, again, aims at setting up the right amount of folliculitis to cause falling of the hair, and many competent observers have found it of benefit. Recording my personal experience of it, I may say I have had many very excellent results with it, but it is an extremely exacting treatment. The whole success depends, as in the croton oil patch treatment, on frequent and thorough bathing with hot water, so that all suppuration is prevented, otherwise a septic eczema of intractable type may be set up. Formalin I may mention merely to state that, in my opinion, there is no justification for its use, as it is the most painful and dangerous form of chemical treatment I know, and, moreover, is successful in only a very small proportion of cases, and these probably might have been cured by any mild remedy.

The Care of the Hair.—In all cases of ringworm in boys the hair should be cut with a pair of scissors as short as possible all over the head, and kept so until it is desired to see how treatment is getting on, when it may be allowed to grow to ½ inch in length. In girls, if there are several patches, all the hair had better be taken off, but in those cases where one can be certain that only one or two patches are present, a similar cutting of these patches with the healthy hair for ½ inch round will be sufficient. As regards washing, I think that ordinary soap and water is perhaps a little risky, but a good scrub with warm 2 per cent. lysol twice a week, or with

1 per cent. if the treatment is one that makes the head very sore, is a very beneficial procedure.

In ringworm of the beard exactly the same remarks apply as to that of the head, with the proviso that croton oil is used by needling alone, and the salt vaseline method is inapplicable. The salicylic nitrate of mercury ointment is excellent, the oleate of copper also most efficacious, but, of course, the X rays are here, as elsewhere, the treatment *par excellence*.

Ringworm of the Nails.—I believe that no method is at present known which will cure ringworm or favus of the nails without removal of the nail plate, and there seems to be practically no tendency to spontaneous cure.

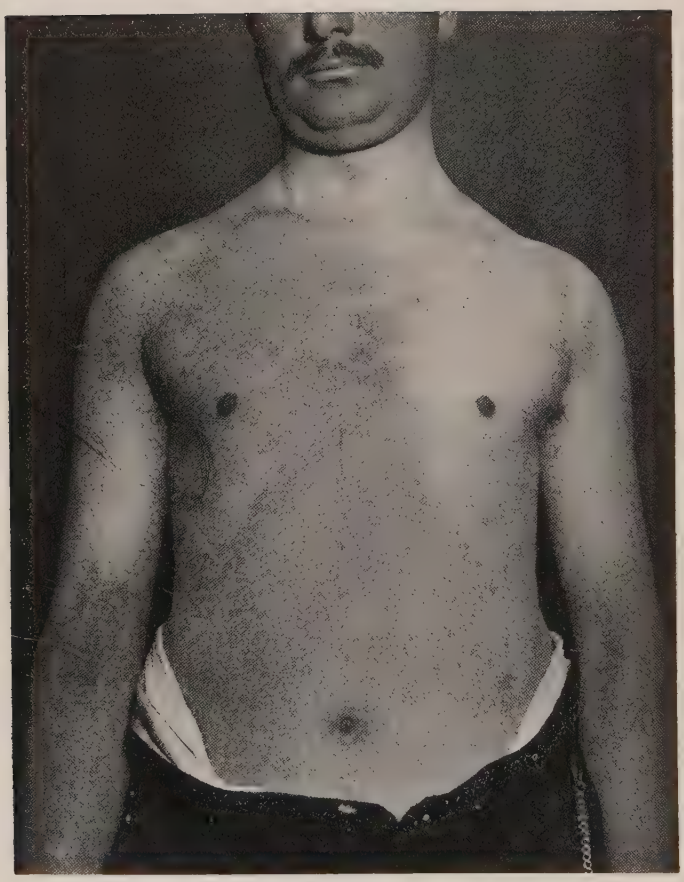
The method which I have found most successful is the evulsion of the nail under a general anæsthetic, and the dressing of the bed and the posterior fold with chrysarobin ointment for the whole period after evulsion until the new nail appears to be growing in a healthy condition. Occasionally I have had to repeat the evulsion, but this is rare.

Norman Walker soaks the nail in Fehling's solution, and claims that the nail is thereafter easily removed, but great care must be taken to avoid causing sloughing of the skin around, and this is done by the application of a paraffin ointment.

III. Pityriasis Versicolor.

This disease attacks the glabrous skin only, and is due to the presence of the mould fungus named the Microsporon furfur. It would appear that a marked predisposition is necessary, since efforts to inoculate the disease are not often successful. It is chiefly found in those who perspire freely, and for this reason, perhaps, has a special tendency to attack those suffering from phthisis.

Symptoms.—The disease begins as a slight yellowish discoloration around the hair follicles. These macules enlarge until each attains a diameter of from $\frac{1}{8}$ to $\frac{1}{4}$ inch, and then they coalesce to form a sheet, beyond the edge of which the primary macules may be still seen. There is occasionally slight congestion beneath the yellow colour, and scaling is



PITYRIASIS VERSICOLOR

usually present to some extent, but it is very variable. On scraping one of these macules, however, it is found that one can detach the superficial horny layer in a continuous sheet like cigarette paper, and on examination under the microscope the characteristic fungus is found in great abundance. The discoloration disappears after the superficial horny layer is scraped away. The localisation is most usually on the chest and back, corresponding to the areas of greatest heat and perspiration; on rare occasions, however, it may spread far down on to the arms and legs, especially the bends of the elbows and knees, and I have seen one case in which it reached the basal phalanges of the fingers. The only symptom is itching, and this is not always present.

The diagnosis is from Addison's disease and arsenical pigmentation. From the former no difficulty will be experienced if the mode of development of pityriasis versicolor is studied. From the latter the naked eye diagnosis may be extremely difficult in rare cases, more especially as the pigmentation of arsenic may be associated with scaling and removable with the scales. The microscope will, however, at once settle the question, as the fungus in pityriasis versicolor is so abundant that the first scale examined always contains masses of it. The parasite is a mould which is so difficult to cultivate outside the body that only a few observers claim to have succeeded. In the scales it is found in great abundance in the form of short oblong mycelial elements, usually bent at an obtuse angle, and masses of round spores of very variable size.

Treatment is very simple, the chief point to be remembered being the disinfection of the underclothes and the persistence of treatment after the apparent cure of the disease.

Solution of hyposulphite of soda in 5 per cent. strength, followed by the use of a 3 per cent. solution of acetic acid, will remove the patches in a few days. Or a sulphur and salicylic acid ointment may be used (3 per cent. of the former and 2 per cent. of the latter). Or the salicylic acid and benzoic acid ointment mentioned under ringworm will remove it in a day or two.

IV. Erythrasma.

This disease, which is due to superficial infection with the fungus known as Microsporon minutissimum, causes such trifling symptoms that it is usually discovered accidentally by the physician. It may, however, be the starting-point of an irritable eczema.

Symptoms.—The disease occurs almost exclusively in the folds between the thighs, but it may be found also in the axillæ, and I have seen it in the form of large discoid patches scattered over the trunk. The individual lesion is a patch varying in size from that of a threepenny piece to a disc 3 inches in diameter. The patch has a very well-defined margin, usually without any outlying lesions, and is of reddish-fawn colour, not noticeably scaly unless scraped, when the scales fall off in very small powdery flakes. It does not usually itch, though occasionally irritation may be marked.

The absence of papules, vesicles, or signs of active inflammation easily distinguish it from eczema or trichophyton of this region.

The parasite is a mould, and is extremely difficult to cultivate, but one or two observers have succeeded in growing it. It occurs as extremely fine filaments of great length lying in a skein in the scales. Some of the filaments carry a terminal club, and a few spores are present.

Any mild antiseptic treatment, such as that recommended for pityriasis versicolor, is efficacious.

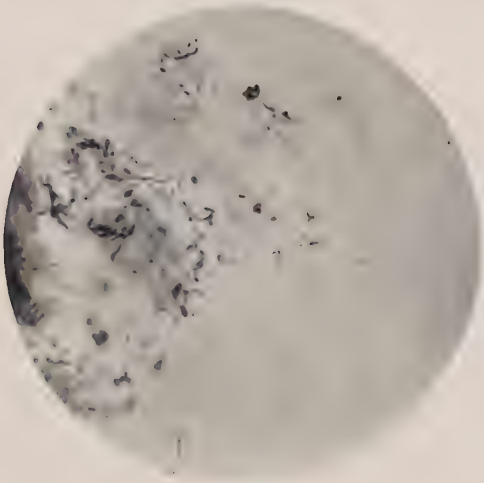
V. Pityriasis Alba.

This eruption is not generally reckoned among the vegetable parasitic diseases, but the researches of Sabouraud, which I have fully controlled and corroborated, appear to make it desirable to class it as an entity.

The *symptoms* are, first, a small patch of friable white scurf upon the scalp, usually appearing on close examination as a fine collarette round each hair follicle. This spreads centrifugally until large tracts of the scalp are invaded, when the circular arrangement is lost and the disease becomes diffuse, thus closely resembling ringworm, though the hairs

MICROSPORON FURFUR FROM A CASE OF PITYRIASIS VERSICOLOR
X 800





MICROSPORON MINUTISSIMUM FROM A CASE OF ERYTHRASMA
X 1000

are not invaded nor broken. In the initial stage it is usually seen only in young children. In adults the picture is more complicated, owing to the fact that the sebaceous secretion commonly affords a culture medium for the micro-bacillus and the common non-liquefying coccus of the skin (see Seborrhœa). The scurf is then of a dirty yellow colour, and very greasy, instead of white. In cases where there is any tendency to loss of hair the infection is undoubtedly a potent factor in determining its occurrence, but the simple scurfy condition may exist for years in some patients without causing a fall.

On occasions the trouble becomes generalised, and then causes nummular or annular patches, especially on the chest and back (seborrhœic eczema one form), and occasionally on the limbs. Here there are actively inflammatory symptoms added, and the rings or patches lie on a reddened base. Moreover, there is frequently set up an eczema of moderate intensity, which differs only in its nature from simple eczema in having this parasitic disease as an underlying factor. It is accordingly dealt with again under eczema. It shows, however, a great tendency to spontaneous resolution everywhere but on the scalp, and this may be compared with ordinary ringworm, which does the same.

The only organism invariably found present is the so-called bottle bacillus, which occupies precisely the same microscopic position in the horny layer as does the Microsporon furfur in pityriasis versicolor. The organism has not been grown in pure culture, but on one occasion I succeeded in getting an impure culture, which, however, rapidly died out.

The bottle bacillus is found either as large round or oval bodies like small yeast cells, or these may show budding at one end, and on some occasions may form short chains.

Owing to the fact that most people are susceptible to the infection, the disease in the scalp is so widespread as to be almost universal in England, and this has given rise to doubts as to the causal relationship of the organism, but no one can work at the distribution of pityriasis alba and the bottle bacillus without being struck by their invariable association. When the disease descends to the body, and, indeed, in most cases where the scalp is moist or greasy from stagnating secretions, the infection becomes complicated by the growth

of the common non-liquefying coccus and the micro-bacillus; but on dry skins the bottle bacillus remains almost pure.

Treatment.—The absolute eradication of the infection from the scalp when once it has occurred is, I believe, very uncommon, if it is ever obtained. When one considers the months of treatment necessary to stamp out other parasitic diseases of hairy regions, it is scarcely to be wondered at that pityriasis alba, considered as it is of only trifling importance, fails to receive sufficiently long and laborious treatment to produce a complete cure.

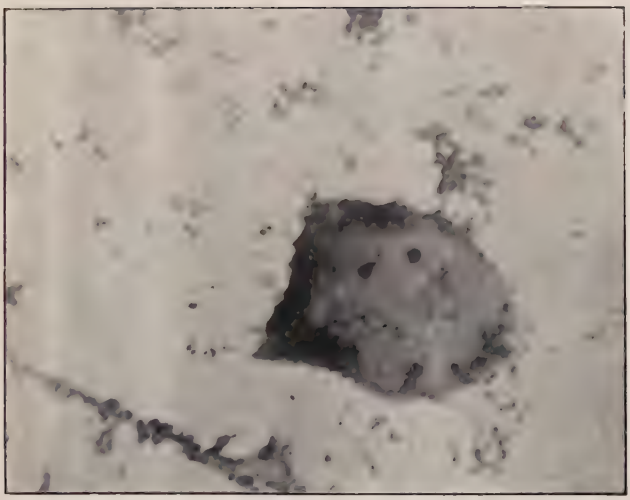
If absolute eradications were to be effected, I believe reinfection would probably occur, as there is no evidence, as far as my knowledge goes, to show that complete immunity is established.

We are then reduced to treatment designed to keep the disease in abeyance, and, since in the same patient the disease varies markedly in intensity at different times, we may conclude that there are factors which offer the infecting microorganisms better conditions for growth. Of these, the only one which is, I believe, beyond doubt is digestive disturbance. Many patients will volunteer the statement that the use of certain articles of diet and certain indiscretions are followed in a short time by an aggravation of the scurfiness and the addition of considerable cutaneous irritation, and therefore in severe cases I believe it to be important to investigate from this standpoint. At the same time it must be admitted that there are many somewhat severe cases in which no defect of general health can be discovered, and I hold it to be useless to invoke a supposed latent gout to account for the trouble.

Local treatment is, in my opinion, as may be gathered from the foregoing statement, the more important.

To begin with, the question of washing arises. Here I hold strongly the view that the scalp must be kept clean.

Nothing is more certain to aggravate the disease and to insure the super-addition of a staphylococcic infection than the presence of stagnant and decomposing secretions on the scalp. The frequency of washing may be varied according to the conditions. In very dry heads washing is not required very often, but if ointments are used they must be washed out at least once a fortnight. Secondly, in very greasy heads,



MICROBACILLI FROM COMEDO
(Extempore Preparation.) X 1200



SCALE FROM PITYRIASIS OF THE SCALP SHOWING BOTTLE BACILLI
(Extempore Preparation.) X 1000

where the pityriasis is associated with seborrhœa, the head should be washed at least once a week.

As regards the agent used for washing, I was at one time a strong believer in the soft soap spirit, with or without antiseptics such as formalin, and I still believe these to be useful, especially at the beginning of treatment. I am, however, inclined to think from careful observation that the use of these very strong soaps has a tendency to cause rapid recurrence of the greasiness in seborrhœic heads, and also perhaps to break up the horny layer too much in the dry cases if persistently used, and thus to render the scalp less resistant to infection.

It is difficult to find a good and convenient substitute for the long hair of women, but there are two methods which appear to me to be useful. The first is the use of ordinary powdered hard soap, such as is sold under various names as shampoo powder, and is dissolved in warm water for use, and the modification that I advise is the use of only a smaller quantity of the powder dissolved in a solution of ammonia.

℞ Pulv. saponis hispanicæ .. .. ʒi.
Liq. ammonia fort. .. .. .. ʒss.
Aq. .. .. ad O.i.

This can, of course, be made up at home quite easily by dissolving a teaspoonful of the soap powder in a pint of tepid water, and adding a tablespoonful of strong household ammonia. It is rather important that the water shall not be hot when the ammonia is added, as if it is the ammonia comes off sufficiently to become rather suffocating.

The second method is to use quillaia bark. This should be bought in powder, and two good tablespoonfuls of it should be tied very loosely in a muslin bag to allow for the swelling of the powder when wet, and suspended in a jug of hot, but not boiling, water for an hour before use. The lather formed by this is not very profuse, but the solution will emulsify fats sufficiently to clean the head.

If the disease is severe ointments are the most efficient applications, and the drugs chiefly in use are sulphur, resorcin, salicylic acid, β-naphthol, tar, and mercurials. I find that coconut oil mixed with soft paraffin makes an admirable base, as it is easily rubbed in and also easily washed out.

℞ Sulphur. præcip. .. .. .. gr. x.
Acid. salicylic. .. .. gr. xv.
Paraffini mollis .. .. ʒii.
Ol. cocois nucif. .. .. ad ʒi.
Ol. geranii .. .. guttas iii.

℞ β-naphthol .. .. ʒss.
Paraffini mollis .. .. ʒii.
Ol. cocois nucif. .. .. ad ʒi.
Ol. geranii .. .. guttas iii.

℞ Ol. cadini .. .. ℥xv.
Hydrarg. ammoniati .. .. .. gr. xxv.
Ceræ flavæ .. .. ʒi.
Paraffini liquid. .. .. ad ʒi.

Also the salicylic and benzoic acid ointment is very efficient. Any of these should be rubbed in every other night and washed out once a week.

Lotions are more convenient, and may be made up with or without oil. I find that turpentine and spirit make a convenient vehicle in some cases.

℞ β-naphthol .. .. ʒss.
Ol. terebinthinæ .. .. ʒii.
Ol. lini .. .. ʒii.
Sp. vini rectific. .. .. ad ʒvi.
Ol. lavandulæ .. .. ℥x.

℞ Hydrarg. perchloridi .. .. .. gr. ii.
Ammonii chloridi .. .. .. ʒi.
Sp. vini rect. .. .. ʒii.
Aq. destillatæ .. .. ad ʒviii.

To be sprayed on to the scalp daily.

It is worthy of note that β-naphthol and resorcin must not be used for very fair, grey, or white hair, as they discolour it.

VI. Pinta.

It is a little doubtful where the disease belongs, but as it is never seen in this country, occurring chiefly in South America and Africa, it is only worthy of the slightest mention. It appears as reddish patches usually on the face or extremities, and these turn blue in some cases and white in others. It may be followed by all kinds of chronic inflammatory disturbances and a subsequent atrophy. Most observers seem to attribute it to a mould fungus, possibly of the aspergillus family, but at least one states that it is a true pigmentary disturbance due to the tropical sunlight. The treatment recommended is the application of antiparasitic ointments.

CHAPTER V

URTICARIA—LICHEN URTICATUS—URTICARIA PIGMENTOSA—PRURIGO

Urticaria.

Symptoms.—The lesions may be divided into two classes—namely, those that make their appearance without apparent local excitation, and those which are the direct results of local irritants. In both cases the actual characters of the lesion are the same, with the exception that the shape and size of those called forth by local stimuli bear a direct relationship to the area irritated.

The first sign is a very transient red blush, due to dilatation of the small peripheral arterioles, and this is succeeded by erection of the hair follicles. This is followed in a very short time, usually four to ten minutes, by an obvious exudation of serum into the affected part of the corium. This exudation takes place into the deeper part of the corium, and consequently no vesicle is formed except in rare instances. The primitive redness alluded to above disappears, and its place is taken by a slightly yellow, pale area, which becomes gradually raised above the surface into a stiff, thickened ridge or patch. After persisting for a variable time—some minutes to several hours—the exuded serum is carried away, and the swelling subsides, leaving behind it a slight paralytic hyperæmia to mark the site of its former existence, and this also gradually fades away.

As has been already mentioned, some of these lesions occur as the result of direct local excitation, while others appear to come out spontaneously. In the former class one may again distinguish two kinds—namely, those which may be called forth in normal individuals by certain irritants—*e.g.*, the sting of a nettle, true local urticarias; and those which are the result of very insignificant local stimulation—*e.g.*, stroking with the

finger-nail in persons in whom there is, either temporarily or permanently, a peculiar susceptibility. This latter type is known as factitious urticaria. Locally produced lesions are almost always limited to wheals and small patches, but in the spontaneous type of eruption large tracts of skin are often affected, so that a kind of whitish tableland is produced, having a faint red border beyond the edge. In rare cases the eruption takes at first the form of a factitious urticaria, and then after a few hours, instead of a mere hyperæmia, actual hæmorrhage is seen to have taken place into the site of the original wheal.

Other aberrant types are the giant urticaria (**acute circumscribed œdema**), in which the effusion takes place into the subcutaneous tissue, forming large nodose swellings, and the converse of this, in which the effusion reaches sufficiently near to the surface to cause vesicles or bullæ (**urticaria vesiculosa** and **bullosa**).

Distribution.—The distribution of the urticarial eruption is extremely widespread. It is not generally symmetrical to any marked extent, and this is probably because, although it may not be apparent, local irritation plays a very strong part in calling forth the eruptions. The palms of the hands and the soles of the feet are not often affected, and the hairy scalp usually escapes, all other parts of the body being frequently attacked. It is to be remembered that urticaria may affect the mucous membranes, and cause severe symptoms, or even a fatal termination, from a sudden swelling in the upper air passages.

The subjective symptoms of urticaria are itching and burning, but the former usually predominates, and may be so bad as to deprive the patient of sleep. Curiously enough, the skin is not usually much torn in pure urticaria.

The *course* of the disease is very variable, and two varieties, an acute and a chronic, may be recognised. In the acute form the lesions often come out with some fever and constitutional disturbance, attain their full number and development in a day or two, and usually pass off within a week. In the chronic form the individual lesion is still acute in its course, but the eruption continues to come out for weeks, months, or even years.

A third form may be distinguished, but it is of the greatest rarity. In it the individual lesion is persistent, and the disease is therefore known as **urticaria perstans.**

Diagnosis.—Urticaria may have to be distinguished from a rather indefinite form of erythema multiforme, in which case the superior symmetry of the latter disease and the absence of factitious wheals or papules may be of help, but this diagnosis is rather of an academic interest, as the two diseases are so closely allied. Secondly, it may have to be distinguished from a curious and rare early syphilide, known as the "urticarial" syphilide. Of this I have seen only one case, and in it the lesions were a good deal redder than most true urticarial wheals; they were also of harder consistence, and the other signs of florid secondary syphilis were present. Very early tubercular leprosy might be confounded, but the persistence of the lesions should lead to examination (see Leprosy).

Lastly, it is quite conceivable that an early stage of mycosis fungoides might give trouble. Here, again, one would rely on the harder consistency of the lesions, the longer duration, the more definite edge to the patches, and the tendency to form circles.

Etiology.—A. *External*—Physical.—Urticaria may be produced mechanically by a very sharp blow, such as that of a whip-lash, more especially if it strikes the skin where it lies closely over a bone, as on the finger. In some patients also the ordinary galvanic current will excite wheals, and in everyone the use of the electrolytic needle. The hairs of some caterpillars and vegetables, such as those found in the ordinary hip or rose berry, and some powders, also cause the eruption, but it is not certain how far there may be also a chemical element present in these.

Chemical.—The bites and stings of many insects are well-known causes, and are probably in all, as they are known to be in some, active by reason of a chemical which acts upon the blood, and lowers its coagulability. It is also probable that the vegetable poisons, such as that of the common stinging-nettle, act in the same way.

B. *Internal.*—The internal causes of urticaria are so manifold and obscure that it is only possible to indicate some of them. First, there is the great class of ingesta. This

includes acid fruits and strawberries; certain shell-fish, especially the mussel and crab; decomposing food, such as high game and cheese; canned foods; indigestible foods, as pork, cucumber, nuts, etc.; and certain foods, such as eggs, which are only operative in persons with an idiosyncrasy. Next comes disorder of the alimentary canal, in which urticaria may follow, not any particular substance ingested, but rather an attack of dyspepsia, and this is more often intestinal than gastric in its symptoms. Certain drugs may be responsible for an outbreak, the chief being the balsamic resins, such as copaiba; potassium iodide, and chloral; also the various therapeutic sera. Toxæmic states, such as are met with in malaria and ruptured hydatid cysts, are among the rarer causes in this country. The metabolic autotoxæmias, chief among which is gout, must also be included; and, lastly, those highly neurotic states which are associated with hysteria and catalepsy.

In chronic cases a search should be made for *Bacillus coli* in a specimen of urine obtained with aseptic precautions. Experience has taught me that many cases of chronic urticaria are associated with chronic or intermittent bacilluria.

Pathology and Anatomy.—The anatomy of urticaria is very simple, consisting of a simple exudation of non-coagulating lymph, with leucocytes collecting around the vessels and disintegrating, and the stretching and rupture of some strands of the white fibrous tissues.

The pathology is still obscure, but two main changes are present—namely, a diminution of coagulability of the blood, as shown by Wright, and an increased permeability of the vessel wall, which is more or less hypothetical. The former explains the action of acid fruits, which decalcify the blood, and crab extract and leech extract, which interfere with the coagulability of the blood; and the same effect is probably produced by the bites of insects and stings of plants.

The latter must be invoked to explain those cases in which the coagulability and viscosity of the blood can be shown to be undiminished.

Treatment.—It cannot be too strongly urged that the successful treatment of urticaria is bound up with a satisfactory elucidation of the cause.

In the case of an acute urticaria one has often only to ask a few questions about the ingesta of the last few days to discover the cause, and in this case the exhibition of a calomel purgative, followed by a few days' treatment with saline aperients, is usually sufficient. In cases where the history does not give an immediate explanation of the occurrence of the eruption it is well to be on one's guard against parasites. To people in good circumstances the idea of bug bites will not occur, and I have seen one case where, after the most exhaustive inquiries and examinations had been made, the matter was only cleared up by the discovery of a bug in the bed. In those cases where the attack has been brought on by sour fruit it may be usually at once cut short by giving lime salts, the best being the lactate:

℞ Calcii lactatis } .. .. gr. xxx.
Aq. anisi ʒ

M. ft. haust. To be taken at once.

It is in the chronic cases, however, that the greatest difficulty occurs. In these a careful estimation should be made of the time taken by the blood to coagulate, and if longer than normal, suitable measures should be taken to hasten it. For this purpose the addition should be made of large quantities of milk to the diet, all fruits and acids should be prohibited, and lactate of calcium (gr. xxx. every other day) should be administered.

In some cases the official syrup of calcium lactophosphate is more efficacious, and it is certainly much more palatable.

Should all efforts to find out a cause be unavailing, recourse must be had to a list of drugs which have proved of use in other cases. Quinine is certainly the most generally useful; it should be given in large doses—not less than 5 grains—three times a day for two or three days, and if not rapidly efficacious should be discontinued. Salicylate of soda has been spoken very well of by some, but has proved disappointing in my hands. Ichthyol is sometimes useful, and all the intestinal antiseptics have their champions. As a temporary measure, galvanisation of the spine with the positive pole at the nape of the neck and the negative over the sacrum is very efficacious. Local treatment will also be required to control the itching, and this is a very difficult matter. Tepid baths, with the

addition of ½ pound of sodium bicarbonate to 30 gallons of water, are perhaps the most often successful. The patient should be only gently dabbed dry, and if necessary powdered with starch.

Lotions, usually containing spirit, are often of service, the drugs incorporated being carbolic acid, liquor picis carbonis, salicylic acid or menthol, all in the proportion of ½ to 2 per cent. Powders may be tried, and probably nothing acts better than pure wheat starch or fine Fuller's earth. Ointments are not as a rule well borne. It is important to keep the patient in an equable temperature, and light clothing, preferably of fine cotton next the skin, should be worn.

One may also try the effect of the brush discharge from a high-frequency electrode in those cases where there is a neurasthenic condition from overwork, and in the purely hysterical cases suggestion may be used.

Lichen Urticatus.

Synonyms.—Urticaria papulosa of children, strophulus.

Whether this disease in children is the analogue of urticaria is still unsettled, but that it has many points of similarity is certain, and it should be remembered that true urticaria is uncommon in infants.

Symptoms.—The initial lesion is a red œdematous patch, usually about ¼ inch in diameter. It is of a very bright red tint, and on pressure it fades completely, with the exception of a central papule, which may remain after the general hyperæmia is pressed out, and show as a dark red point. To the touch the lesion feels soft and cushion-like, but the central point above mentioned may be much harder than the rest of the patch, giving the impression of a minute papule under the skin. This description applies to the lesion when fully developed, and as the complete efflorescence has only a short duration, and generally occurs in the evening, it may not be seen at all in the daytime.

Owing, however, to the persistence of the central induration after the subsidence of the surrounding hyperæmia and œdema, a small. hard papule of a slightly brownish colour is left for a day or two. The eruption thus described is dis-

tributed rather symmetrically, and chiefly over the lumbar and gluteal regions, the thighs, calves, and feet, and the forearms and hands, but it may occur anywhere over the entire surface of the skin. The lesions are not readily excited to renewed turgescence by rubbing, and factitious urticaria is almost invariably absent. The eruption is intensely pruritic, and may entirely deprive the child of sleep, but otherwise it has no particular effect upon the health.

In some cases the exudation becomes so intense and superficial that the summit of each papule is raised into a vesicle, and has given rise to the suggestion that it is related to varicella, which it closely resembles (**varicella prurigo**). Although it is quite possible that an attack of varicella may determine an outbreak of lichen urticatus in a child who is subject to the latter disease, I think this must be far from common, since, after careful inquiry in a very large number of cases, I have been unable to find a single instance in my clinics. Occasionally the vesicle formation may affect the whole area of efflorescence, and thus give rise to large bullæ, especially on the hands and feet, but this is distinctly uncommon. Owing to the intensely pruritic nature of the disease, scratching is very severe, and all its results are well seen. Thus the hard papules are generally covered with small blood-crusts, and in many cases pus inoculation takes place, leading to the formation of rather deep little pits, which, however, do not usually leave permanent scars. Ordinary impetigo vesicles and pustules, scabs, and scratch marks are mixed up with the fundamental eruption, so that it may most strongly suggest scabies. In some cases, also, one may observe the presence of a fine miliary rash, but as the disease is distinctly commoner in overclad children and in hot weather this may only be the result of a common cause.

The disease usually comes on in the first two years of life, and persists more or less until the child is about seven years of age or even older, but intervals of complete freedom lasting several months usually break up the course of the disease into a series of attacks. Ultimately all cases get well unless, as is believed to be the case on the Continent, some run on into Hebra's prurigo, an event which has seldom or never been observed in this country.

Etiology and Pathology.—The causation of the disease, in spite of its frequent occurrence, is still very obscure. It has been ascribed to dentition, to dyspepsia, to rickets, and to the depressing effect of infectious disorders, and though no doubt it occurs with all these, the greatest number of cases is found in otherwise extremely healthy children. It is certainly commoner in fat children with large appetites than in those who look puny, but it is by no means in the rickety, fat child alone that it is found. One fact has perhaps impressed me more than any other, and that is that the skin of the child with lichen urticatus is hot and moist, and the clothing usually excessive, but whether this is more than a mere determining cause it is difficult to say. The coagulability of the blood is generally lowered, and this might account for the association with dentition, rickets, and acute fevers; at all events, it supplies an indication for treatment.

The pathological anatomy has not been studied very often, but it appears to be an œdema of the corium associated with rather more cellular accumulation than is found in ordinary urticaria.

Diagnosis.—The only errors likely to be made are, first, the confusion of the disease with scabies or with varicella; secondly, the detection of the secondary eruptions and the failure to recognise the lichen urticatus lying behind.

As regards the diagnosis from scabies, this may be said at once to offer extreme difficulty in some cases, more especially when two children who sleep together both have the disease, thus lending a false air of contagiousness. A careful inquiry into the circumstances will, however, elicit the fact that no adult in the family is suffering from the affection, and that the eruption occurs in successive sharp outbreaks in the patient. Secondly, no scabies cuniculi are to be found, and this is, of course, the actual foundation of a diagnosis. From varicella the disease may usually be distinguished by the peculiar distribution and by the absence of lesions in the mouth. The small hard papules and the history are of assistance, and the fact that in lichen urticatus vesiculation is not common on the trunk. The other error, that of regarding the secondary eruption as the whole trouble, may be avoided by attending to the distribution of the eruption and

its great itchiness, and remembering that lichen urticatus is a very common cause of scratching in young children.

Treatment.—First, the clothing should be carefully regulated according to the temperature of the air, and a child should not be heavily clad on a warm day because it happens to occur in January. Secondly, diet should be plain and suitable to the child's age; milk may be taken in fairly large amounts, but sugar and starchy food should be taken in very moderate quantities only. Perhaps the most important point is to limit the amount of food generally, rather than to exclude any special article, with the exception of vegetable acids such as are contained in most fruits.

Of drugs many have been recommended, such as quinine, belladonna, ichthyol, salol and other intestinal antiseptics, and saline aperients. Of these, I have certainly seen the most benefit from the last, and have been in the habit of using the well-known mistura alba in drachm doses in the morning, and, if necessary, also in the evening. The favourable action is probably due to the draining off of part of the water from the blood, and the raising of its coagulability by the magnesia contained in the mixture, since Wright has shown that magnesium salts, if capable of absorption, have this action. As regards the action of the sulphate, even if this act, as is said, merely by preventing the absorption of water from the bowel, and not by causing a flow into it, the loss of water in the blood will still occur. The lactate of calcium may also be given, and children take it well with anise water, but it is, of course, usually constipating. Nevertheless, I have convinced myself by repeated observation that it is the most useful of all the internal drugs. As mentioned under urticaria, the syrup of the calcium lactophosphate may be used instead of the lactate, and I am of opinion that it is far more efficacious. The dose I usually give is ½ drachm to 1 drachm in about ½ wineglassful of water twice a day after meals.

In very severe cases it may be necessary to procure sleep at all hazards, and for this purpose chloral and bromide of potassium may be used, or belladonna may be given as a nerve sedative.

℞ Tr. belladonnæ .. .. ℥v.
Potass. brom. .. .. gr. iii.
Aq. .. .. ad ʒi.
Three times a day. (For a child three years of age.)

℞ Chloral hydrat. .. .. gr. iii.
Aq. .. .. ʒi.
At bedtime. (For a child three years of age.)

The local treatment of the skin should not be neglected, and its form will rather depend on the amount of pyogenic infection which has occurred. Local purulent affections may be readily subdued with a weak (2 per cent.) white precipitate ointment, care being taken, if they are widespread, not to induce mercurial intoxication. For the pruritus nothing acts better than the addition of tar in some form to the bath, and the form which is most easily applied is liq. picis carbonis, 1 ounce in 5 gallons of water. The bath should not be too hot—about 95° F. is usually the best temperature—and the child should lie in it for about five minutes. A very light drying by dabbing with a warm towel should follow, and the skin may be powdered over with warmed starch powder. As the eruption comes out chiefly at night, and is aggravated by changes of temperature, these should be carefully guarded against.

Urticaria Pigmentosa.

This is an extremely rare disease, and will be dealt with only very shortly. The eruption consists of generalised macules or papules scattered over the whole surface of the body. The individual lesions vary a good deal in character and size. Sometimes they are only very slightly raised above the surface, and at others they may stand out as great lumps almost the size of a split acorn. The colour, when they first appear, is of a bright yellowish-red, but this fades in a short time, and the lesion then attains a buff, brownish, or almost black colour.

In consequence of this variation of the lesion the eruption has been divided into three types—the macular, the nodular, and the mixed. The first sign is the production of a wheal, which is of a bright yellowish-red colour. This may either die down and leave a very marked buff, brown, or almost black stain (macular type), or it may persist, with the same colour changes, as a hard nodule. These lesions have a great tendency to be arranged with their long axes in the lines of cleavage. Itching is usually a marked symptom, but may



HEBRA'S PRURIGO. (Note the Prominence of the Inguinal Glands.)

be absent. Factitious urticaria is also present, and the old stained macules or nodules may often be excited to fresh turgescence by friction.

Diagnosis.—This is almost the only factor of importance in the present state of our knowledge. The two diseases for which it is likely to be mistaken are xanthelasma and congenital syphilis. From the former the diagnosis may be made from the colour, which is almost always of a brownish rather than a canary-yellow tint; from the turgescence which occurs when the lesion is rubbed; from the accompanying factitious urticaria; and from the itching, when present. The same symptoms, coupled with the uniformity and the good health of the child, should suffice to distinguish it from syphilis.

The *etiology* of the disease is totally unknown, the only facts at present observed being that it is much more common in boys than girls.

The *anatomy* is that of an ordinary urticarial wheal plus a very marked infiltration of mast cells and some destruction of the elastic tissue. The coagulation time of the blood is short.

The disease generally begins in the very earliest period of life, having been observed at the first washing of the child (Radcliffe-Crocker), but most usually coming out in the first few weeks. Cases have been observed, however, much later in life, some commencing in adults. Most cases beginning in infancy die out a little before or at the period of puberty. No treatment seems to influence the disease in any way.

Prurigo (Hebra).

This disease is placed here for convenience, as, although its pathology is entirely unknown, it appears to have some relationship to lichen urticatus. It is usual to add Hebra's name to that of the disease to prevent confusion, since all kinds of pruritus have been called prurigo. The disease is rare in this country, but it is commoner in those in which extremely poor feeding and depressed circumstances more frequently occur.

Symptoms.—According to those most familiar with it, it appears first as an eruption indistinguishable from lichen

urticatus, and only develops its full characteristics at about the fifth year. At that time the following symptoms are present: The child is undersized and usually badly nourished, the skin is dry and harsh, and becomes gradually inelastic and "hide-bound"; it is deeply pigmented from the continual small blood extravasations which result from the incessant scratching. All kinds of pus infections and traumatic eruptions are present, and, in addition, there are small, hard, white papules about the size of a grain of raw sago scattered about, chiefly on the extensor surfaces and the extremities. Some eczema is often present from the continued harassing of the skin, but large sheets, especially on the flexor surfaces, are rare. The subcutaneous lymph nodes are chronically enlarged from septic absorption.

The *pathology* is unknown, and the *anatomy* is not distinctive.

The *diagnosis* has to be made from long-continued pediculosis corporis (vagabond's disease), and is chiefly founded on the distribution on the extensor surfaces of the limbs. In very marked cases the eczema may mask the underlying disease, but in this event the prurigo will be discovered when the eczema has cleared up.

The *prognosis* in an established case is bad, and in Austria, where the disease is commoner than here, it is believed that most severe cases die before reaching thirty years of age.

Treatment should consist of liberal diet, with plenty of fat and cod-liver oil, and the inunction of a 10 per cent. tar or β-naphthol ointment, combined with frequent warm baths. A limb completely wrapped in cotton-wool becomes almost normal, showing the great importance of local conditions.

Austrian observers maintain that our disease, lichen urticatus, is merely the precursor of prurigo, but the careful researches of Colcott Fox failed to reveal a single case of lichen urticatus which developed into prurigo.

CHAPTER VI

THE ERYTHEMATA

The term erythema by itself merely denotes a redness; but, qualified by certain adjectives, it is applied to a number of eruptions, some of which are related, while others are of widely different nature.

It will be best, therefore, to deal first with a series of local conditions to which the name has been attached, and then with the more important group of eruptions between which a strong relationship exists.

A. Local Erythemata.

Erythema solare and erythema abi gne are the names given to the redness produced by the action of the sun's rays or the radiant heat rays from a fire respectively. They appear to be in reality merely the earliest stage of an acute inflammatory dermatitis, though if the exposure be not too prolonged the hyperæmia will subside, leaving only a moderate pigmentation behind. Erythema ab igne occurs especially on the fronts of the shins of those whose circulation is deficient, and whose ill-health leads them to sit for long periods in front of the fire. It is noteworthy on account of the peculiar appearance of the pigmentation which it leaves behind. This is in the form of an irregular network of brown lines, usually about $\frac{1}{8}$ inch wide, enclosing roughly circular pale areas of $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter.

Erythema leve is a name given to the peculiar pink coloration seen on the legs of patients in whom there is a great subcutaneous œdema, such as those suffering from advanced cardiac disease. The limb is swollen, the skin is very shiny and reddish-pink in colour, and the follicles usually appear as red points, owing to their superior vascularity.

Erythema paratrimma is a somewhat obsolete expression applied to the localised redness which appears at the site of pressure or friction. It is frequent over bony prominences in bedridden patients, and unless the skin is very carefully treated, it is followed by bedsore.

Erythema intertrigo is really, in my opinion, the first stage of a traumatic eczema, and will be referred to again under that heading.

Erythema pudicitiæ.—This, although a local manifestation, is in reality of internal origin. It occurs, as its name implies, as the result of shyness in young women when exposed for examination purposes. The rash appears as roughly circular macules of rather irregular size, varying from $\frac{1}{8}$ to $\frac{1}{3}$ inch in diameter, and situated chiefly between the clavicles and the fourth rib, but showing to some extent on the shoulders as well. That it is not due to change of temperature may be proved by the fact that it occurs just as markedly in hot weather, and is sometimes seen to be already present when the neck is undone. Its only importance lies in the fact that it is an apparent proof of the possibility of the induction of a macular erythema by psychical influence alone.

B. The Generalised Erythemata.

Following Hebra, most writers have divided these into the congestive and inflammatory varieties, and although there are symptoms of inflammation present also in the former, the division is not without value as calling attention to the greater predominance of inflammatory disturbance in the latter. Moreover, the whole subject of the constitutional erythemata is still so little worked out that a rational classification is unattainable at present.

The congestive erythemata follow two types: a punctiform eruption like that of scarlatina, and known as erythema scarlatiniforme, and a macular form, erythema morbilliforme.

They may be either generalised or universal, in the former case the border of the eruption being often very sharply demarcated off from the healthy skin beyond. As regards the distribution, there appears to be no reliable feature enabling one to distinguish these eruptions from the diseases which

they resemble. Especially would I point out that the circumoral pallor which is a marked feature in scarlatina has been in my experience present in the widespread cases of E. scarlatiniforme.

Diagnosis.—The accompanying symptoms are, therefore, those on which the differential diagnosis must be founded, and these are as follows: The temperature is not usually raised more than 1° or 2°, unless there is another obvious cause for fever, such as septic intoxication; it must be remembered that the so-called surgical scarlatina was simply a scarlatiniform erythema due to septic intoxication, except in those rare cases where it was nothing more nor less than an ordinary attack of scarlatina in a surgical patient. Sore throat is not as a rule marked, and where present is an ordinary follicular or parenchymatous tonsillitis, and is unaccompanied by the lurid redness of the palate present in scarlatina. The tongue is generally practically normal, or else heavily coated with a thick white fur, and does not show the characteristic "strawberry" appearance. Coryza is not present, nor the general adenitis of the posterior glands of the neck, and this may help in the distinction from measles and rötheln. Lastly, stress has been laid on the fact that in the scarlatiniform erythema peeling may be seen in one place, while the rash persists in another. That this never occurs in true scarlatina seems to be agreed, but it is, in my opinion, not much use as a means of diagnosis, as in those cases of scarlatiniform erythema in which I have had most difficulty it has not been present. Peeling after the disappearance of the eruption is often as marked as in scarlatina.

The course of the disease is usually rapid—from three days to a week—and complications do not occur, so that it is generally known at the end of a comparatively short time with which form of disease one has to deal, and it is therefore advisable to isolate all cases at first.

The *etiology* of these eruptions is very manifold. Certain drugs, such as belladonna, quinine, mercury (the last especially by inunction), and therapeutic sera, may call forth the scarlatiniform variety, various septic and intestinal toxæmias may produce either, and the administration of enemata is particularly often the cause of a morbilliform eruption, and this, in my

experience, especially tends to begin on the buttocks. It is uncertain whether the eruption is produced, as Wright has suggested, by the decalcification of the blood by the soap, or whether it is due to the absorption of toxins in the breaking up of the fæces. There is, however, some evidence to show that the eruption is at all events more frequently produced by the use of soda than potash soaps. A curious but not very common cause of urticaria, of which I have seen four cases, may be mentioned.

This is the occurrence of a generalised urticarial eruption of papular urticaria, which may become hæmorrhagic, developing about the tenth day after severe contusion. One of my cases occurred after a blow on the shin with a cricket-ball, a second after a fall downstairs with contusion of the wrist, and a third from injury to the skin of the leg.

Mention may here be made of an eruption known as erythema scarlatiniforme recidivans, which appears to be a disease *sui generis*, and is classed by some as an acute form of dermatitis exfoliativa. Usually without any marked disturbance of health, the skin may be suddenly covered with an eruption exactly resembling scarlatina. The eruption lasts a variable time, but usually at least nine or ten days, and is followed by profuse exfoliation, which begins before the total disappearance of the erythema. Relapse may occur at once, or the patient may have attacks once or twice a year. Nothing is known of its pathology or causation.

Treatment of these rashes is not important, as they run to a rapid cure by themselves; the general condition is the only point which may call urgently for attention. It is, however, worth recording that the early administration of lime salts, as recommended above in the treatment of urticaria, has been apparently sometimes successful in warding off the rash commonly called forth by diphtheria antitoxin.

Erythema Exsudativum Multiforme.

There are several varieties of eruption which may be included with certainty under this heading, and some about which there is doubt. Following what I believe to be the general

tendency of modern opinion, I include also those about which there is still some dispute.

Symptoms.—Certain constitutional symptoms are common to all varieties of the eruptions, but in mild cases they may be absent. These symptoms are malaise, headache, slight or pronounced fever, sore throat, furred tongue, and pains of indefinite aching character, especially in the muscles and joints, though definite arthritic effusion is not often marked. In rare instances cardiac murmurs have been found present, and still less commonly these have persisted after complete recovery from the attack. A rapid blood destruction seems to be an almost constant symptom, and after the attack has passed off well-marked anæmia is almost always apparent.

The Eruption.—The fundamental lesion is a papule which from its commencement is of large size—*i.e.*, that of a split pea. This papule is usually either very bright red or bluish-red in colour; it is never acuminate, but always dome-shaped; the epidermis over it is stretched and shining, and the sensation given to the finger is one of tense œdematous and cushion-like infiltration.

The chief sites of predilection are the dorsa of the hands and feet, the extensor surfaces of the extremities, and the face, especially the forehead, though the trunk is often affected also. Phlyctenule is often present on the conjunctiva, or there may be diffuse conjunctivitis, and the mucous membranes of the mouth are often affected, more especially in the bullous forms to be described later. The rash may retain its primitive form, in which case it is named erythema papulatum, or certain developments may arise from it. The first of these is a further increase in size, and especially in depth, so that the primitive papule becomes a nodule (E. nodulatum or tuberculatum). In other cases the papule merely spreads out superficially, and the centre may resolve, giving rise to a ring (E. annulatum); if several of these rings intersect one another, the parts of the rings enclosed between the points of intersection resolve, and there is produced a series of polycyclical figures (E. gyratum). Again, the large figures so formed may progress eccentrically, possibly at one margin only, and an advancing wavy line is thus produced (E. marginatum), or the centre may not resolve, forming large sheets with a definite edge.

These are all the simple varieties of the papule, but in addition to them vesicle or bulla formation may also occur, presumably by the rapid accumulation of fluid in the papillary body and the death and raising of the total epidermis in the form of a blister (E. bullosum). Most commonly, when this occurs, a peculiar sequence of events follows. The initial papule vesicates, and the spreading edge remains papular, but surrounded by a white œdematous margin. There is thus produced a target-like lesion with a vesicular centre, and red followed by white rings round. This vesicle then flattens down to a scab, usually dark red in colour, from the admixture of blood with the serum, and the part immediately round the scab becomes a thick-walled, pearly, annular vesicle, and this is in turn surrounded by a red and white zone, from the peculiar appearance of which has been derived the name erythema or herpes iris. In very rare cases the centre forms a large bulla, and this is surrounded by small vesicles; but there is some doubt as to whether this form really belongs to the class of erythema multiforme, or whether it is a sub-variety of pure herpes.

Another form, which by many is regarded as a separate disease, is erythema nodosum. This eruption does not develop from the primitive papule, but springs up as large nodes from the first. These nodes are most commonly seen on the fronts of the legs below the knee, but are not, as is commonly stated, chiefly situated over the subcutaneous surface of the tibia, being quite as often, if not more frequently, situated just external to it over the tibial muscles. The nodes are oval in shape, and vary in size from $\frac{1}{2}$ to 2 inches in their long diameter, which lies in the long axis of the limb. They are at first bright pinkish-red, firmly elastic, and somewhat deep-seated, though they do not give rise to the sensation of a spherical node. As they fade they pass through a bluish-red to a purple, and finally brown, hence the synonym dermatitis contusiformis. Although chiefly seated on the legs below the knees, they may occur on the extensor surfaces of the arms, where they are usually smaller, and resemble more nearly E. tuberculatum. They have been described, though rarely, on the face and in the mouth. They are intensely tender, in contradistinction to other lesions of E. multiforme, which give rise to itching and



Erythema Iris

burning and, when bullous, are very sore. The constitutional symptoms of E. nodosum are usually more severe than those of the others.

An additional symptom, often, if not invariably, present to some degree, is a curious general cyanosis of the extremities combined with a certain amount of œdema of the ankles. This is usually most marked in the papular and bullous forms, and is less evident in the nodose.

Course and Duration.—The individual lesions of E. multiforme persist a variable time, according to the severity of the disturbance and to the degree of spreading. Small papular (and even the larger nodular) lesions persist, usually from three to seven days, while annular eruptions may spread for a fortnight. Bullous lesions naturally take some time—from a week to ten days—to recover, leaving behind them a well-marked stain for a much longer time. Nodose lesions usually take a week or ten days to run through their characteristic changes.

The duration of the disease is not, however, measured by the length of life of the individual lesion, since new ones continue to come out for some time. Perhaps it is safe to say that repeated crops are less common in the nodose than in other forms of the eruption, the whole process coming to an end usually in three or four weeks. In the other forms the duration may be even less than this, but it is more commonly about six weeks.

Recurrence in ordinary E. multiforme is very common, and patients sometimes show attacks once or twice a year, whereas in E. nodosum recurrence is distinctly exceptional. It is curious that, when recurrence takes place, there is a special tendency to reproduce the original type; thus a recurrence in a patient who has suffered from E. iris will probably again take the iris form. In very rare instances gyrate eruptions indistinguishable from E. gyratum have proved persistent even as regards the individual lesion (E. perstans).

Pathology and Etiology.—There are several very interesting points about these, and the whole matter is still in dispute. The chief point at issue is whether the disease is of rheumatic origin or not. Those who hold to the rheumatic theory base their belief chiefly on the presence of the somewhat equivocal "rheumatic" pains which so often accompany the eruptions.

Owing to the multiformity and variability of the eruption, it is not very certain whether all observers have been really discussing the same disease under the same name, and this is especially the case with E. nodosum. Thus, Demme described under this name some interesting cases, in which he cultivated a virulent bacillus from the lesions, but in these cases the node necrosed, a development which, in my opinion, suffices to put them into a separate class.

Again, I have seen an expert visitor to my clinic call an eruption erythema nodosum syphiliticum, which I should have registered merely as unusually large syphilitic papules in a leg the seat of marked varix. I give these instances to show how misleading may be the arguments of experts who are not in constant touch over the same cases, and with this caution it may be pointed out against the rheumatic theory that E. iris has been called forth by the inunction of mercury, E. multiforme by irritation of urethra, and all papular and nodose forms described with tuberculosis (when it is said to be of grave prognostic significance), with syphilis, with intestinal toxæmia, with "glandular fever," tonsillitis, and various other toxic conditions.

On the other hand, some observers, looking at the course, symptoms, and periodic occurrence (chiefly spring and autumn) of the eruption, consider it a specific fever *sui generis*. Without giving any very decided opinion in favour of this view, I think, having regard to the fallacies of comparing others' statistics with one's own, that there is more reason for this assumption than for any other, and I hold firmly the belief that the association with rheumatism is grossly exaggerated by those who see in E. multiforme, and especially E. nodosum, nothing but a rheumatic manifestation.

The other point of dispute is the identity or non-identity of E. nodosum with E. multiforme. Here, again, one must be on one's guard against the statistical fallacy alluded to above, but if statistics go for anything, they go to show that the two eruptions have quite different curves of intensity as regards the period of the year. Add to this the much slighter tendency to recurrence of E. nodosum, and I think we must admit that the balance of evidence is against the theory that E. nodosum is but a peculiar variety of E. multiforme.

Undoubtedly, in certain cases there is a retardation of the coagulability of the blood, as has been mentioned under urticaria and the congestive erythemata. Although, no doubt, but a secondary effect of the poisoning, it is of interest on account of its significance from the point of view of treatment.

The *anatomy* of the lesions has no very particular interest. There is marked œdema of the corium with a good deal of cell accumulation around the vessel, the cells being largely polynuclear leucocytes and eosinophiles. The epidermis is raised in the bullous forms, usually in its entirety, the horny layer not being separated from the mucous layer. The blood often shows a moderate eosinophilia (4 to 12 per cent.).

Prognosis.—This is almost invariably favourable, though some of the bullous forms, affecting the conjunctiva and oral mucous membranes severely, may appear very threatening. A great deal of obstinate anæmia is often left behind.

Diagnosis.—This is often of the greatest importance, and must be taken in the order of the forms of eruption.

The papular and nodular forms are, above all, likely to be mistaken for syphilis. Against this we have the peculiar œdematous feel of the eruption, the bright red colour, the presence of marked burning or itching, and the absence of the other signs of florid secondary syphilis, especially multiple adenitis. The bullous forms may be mistaken for herpes, dermatitis herpetiformis, and pemphigus. From the former the bilateral distribution in the peculiar situations, the presence of very marked redness, and the peculiar eccentric spread should suffice; from dermatitis herpetiformis the diagnosis may be impossible until the case has been under observation long enough to determine whether it is an acute or chronic disease, but some help may be gained from the fact that the erythema has a much greater tendency to concentric ring formation, which is very rare in dermatitis herpetiformis. From pemphigus the close study of the eruption should make the diagnosis, since the eruption in E. multiforme always arises on a red papule, while in pemphigus it springs from the apparently healthy skin.

In some cases of very fine annulate erythemata one may have to exclude ringworm and so-called seborrhœa corporis. No difficulty should be experienced if it be remembered that

E. multiforme is primarily a corium disease, and the others epidermic. Accordingly, in the former scaling is slight or absent, and numerous minute follicular vesicles or pustules seldom occur, whereas they are the rule in the latter two. The microscope will, of course, finally decide in the case of ringworm, and a stained scale in E. multiforme will show nothing, while in seborrhœa it will reveal the presence of cocci, microbacilli, and bottle bacilli.

Treatment.—An extraordinary diversity of opinion as to the efficacy of certain forms of drug treatment exists, and I cannot help thinking that the opinion of some is biassed by their idea of the pathological relationship. Of course, the first thing to do is to exclude drugs as a cause. It then becomes a question of what drug to give, if any, seeing that the disease, as a rule, runs a subacute course. The favourers of the "rheumatic" theory hold to sodium salicylate, and Norman Walker regards it as specific in E. nodosum and very useful in the other forms, whereas many observers, among whom I may include myself, have found no benefit at all from it. For E. nodosum I have found rest in bed, possibly with bandaging of the leg, the only useful measure, but the lactate of calcium treatment mentioned under urticaria has been found of value by some. In E. multiforme of other types quinine in fairly large doses is generally useful in limiting the attack, but nothing is specific. Iron, with or without arsenic, is needed for the anæmia afterwards.

One practical point may be useful, and that is in the case, by no means uncommon, in which extensive vesication of the oral mucous membrane renders the patient miserable and feeding difficult. In this case the B.P. cocaine lozenge and the carbolic acid lozenge may be used together. It is best to limit the former to one a day, which may be divided into four and allowed to dissolve slowly. There is no risk of cocaine habit, as the mouth gets quite well in a short time, and it is unnecessary to tell the patient what he is taking.

Local applications should be merely cooling lotions, such as lotio plumbi or lotio calaminæ, for unbroken lesions, and a rather stiff boric acid ointment spread thickly on linen for ruptured bullæ.

Erythema Pernio (Chilblain).

Although at first sight it would seem that chilblains have nothing in common with the other erythemata, it will be found on closer examination that there is a certain relationship. A careful study of the evolution of chilblains demonstrates the following peculiarities: They are commoner in persons with a "poor circulation"—that is, those who on exposure to a slight degree of cold show either cyanosis of the extremities, or that spasmodic contraction of the arteries popularly known as "dead finger." At the same time, it must be remembered that many cases of poor circulation are never associated with chilblains, and, *vice versa*, many cases of chilblains occur in persons who never exhibit the cyanotic or local syncopic tendency.

Symptoms.—The development of chilblain may be either circumscribed or diffuse. In the circumscribed form a deep nodule forms rather quickly in the corium, causing an œdematous patch as large as a split pea, of lively pink colour, with a stretched and shining condition of the epidermis over it. This nodule gives rise to symptoms of extreme itching, burning, or tenderness. In most cases the nodule subsides, but one of two further developments may occur. First, the epidermis may be raised as a whole in a thick-walled vesicle, which ruptures, leaving a small, indolent ulcer, and this may either become infected and spread, or may heal slowly, with or without the production of a visible scar. Secondly, while not producing so severe a disturbance of the epidermis as to raise it off the papillary body, there may occur a hypertrophy with abnormal formation of the horny layer, resulting in a fissure with thickened edges.

The diffuse form is, perhaps, not properly to be called chilblain, but it is so common an accompaniment of marked chilblain that I class it with these lesions. It occurs as a diffuse œdema of part or the whole of the digit, either finger or toe. Vesicle formation does not occur, but improper and excessive horny development is the rule, producing roughness, scaling, and fissuring, lasting long after the cessation of the cold weather, and in some cases even producing permanent deformity of the part.

Pathology.—The processes at work seem to be very closely allied to those of the erythemata, as there is evidence of (1) an irritability of the vasomotor system, (2) a special vulnerability of the vessel wall, and (3) in most, if not all, cases a retardation of the coagulability of the blood. I have not examined a chilblain microscopically, but hyaline thrombosis has been described as a characteristic feature.

Diagnosis.—The diagnosis has to be made from E. multiforme and from lupus erythematosus. From the former the peculiar localisation on the fingers, toes, and heels rather than on the backs of the hands, and the affection of the nose and ears, which usually escape in E. multiforme, are indications; also, of course, the obvious etiological factor of cold and the history of frequent attacks with every lowering of temperature. From the latter, persistence of the lesion is the only point of difference of which I am aware; even the simultaneous presence of typical lupus erythematosus elsewhere is not characteristic, as chilblains are particularly common in patients with lupus erythematosus.

Treatment.—With the presence of the three pathological factors mentioned above, more or less clear indications for treatment are present. The first is the reduction of the tendency to arterial spasm, as the resulting ischæmia may of itself be the cause of the damage to the vessel wall. This reduction may be effected by opium in small doses, or, better, by the administration of the vaso-dilators, such as nitroglycerine ($\frac{1}{200}$ grain three times a day), or erythrol tetranitrate ($\frac{1}{50}$ grain three times a day), or by regular daily application of the weak galvanic current, the negative pole on the nape of the neck and the positive in a basin of warm water in which the hands are immersed, or if the chilblains are on the foot, the negative pole is placed over the lumbar spine and the positive with the feet in a foot bath. A current of 5 milliamperes for ten minutes daily often greatly improves matters. The second indication, that of averting the damage to the wall, is partly secured by the treatment already detailed, and possibly furthered by the administration of small doses of cod-liver oil (1 drachm two or three times a day). Daily soaking the affected part in 5 per cent. salt solution at a temperature of 100° F. is, in my ex-

perience, very efficacious in relieving the itching of unbroken chilblains.

The third indication is met by the administration of calcium salts or magnesia, as already mentioned under urticaria and E. multiforme. It ought to be hardly necessary to state that tight clothing for the hands and feet should not be worn, but it is perhaps well to state that in my opinion woollen gloves are detrimental. Loose chamois leather gloves are best. Woollen stockings should not be worn unless with cotton or silk under them.

CHAPTER VII

PURPURA

It must be clearly understood at the commencement of this study that purpura is a form of eruption only, and not a pathological entity. The name signifies merely that a hæmorrhage has taken place into the skin in a sufficiently superficial position to cause a purple discoloration of the surface.

Purpuric or hæmorrhagic eruptions may occur:

(1) As the result of trauma, as in bruising, insect bites, etc.

(2) As the characteristic eruption of what appears to be a specific disease—Schönlein's, Henoch's, and Werlhof's purpura.

(3) As the result of any severe intoxication: (*a*) As a primary eruption in acute sepsis, in some drug intoxications such as potassium iodide, and in scurvy; (*b*) as a hæmorrhage into another form of eruption, as in the acute specific fevers, measles, variola, scarlatina, the chronic specific diseases, syphilis, etc.

(4) As the result of degeneration of the vessels in chronic conditions, senility, nephritis, diabetes, etc.

Of these varieties, only those under heading (2) will be considered in any detail, as the others are either of obvious nature or find their place in textbooks on medicine.

A. Schönlein's purpura, peliosis rheumatica.
B. Henoch's purpura.
C. Werlhof's purpura.

After careful consideration of my own cases and those reported in journals, I concur with the opinions of those who regard these two forms of purpura as varieties of the same disease, and, further, as in all probability identical in nature with erythema exsudativum multiforme.

Symptoms.—In Schönlein's form the disease begins rather suddenly, and usually with a slight rise of temperature, accompanied either by fleeting and indefinite muscular pains or by pain in the joints, possibly associated with slight effusion into

the synovial cavities. At the same time, or very soon after this, the rash makes its appearance. This takes the form at first of very bright scarlet spots, varying in size from that of a pin's head to that of a sixpence, and is distributed in mild cases almost entirely on the limbs, sometimes being located especially around the joints. The legs, probably from their dependent position, are usually more severely affected than the arms. These red spots are usually very slightly raised, and commonly show a narrow white urticarial margin around them, but although bright red in colour and suggestive of an erythema it will be found that from the first they do not fade on pressure, showing that extravasation has already taken place. In some of the patches the hæmorrhage bursts through the papillary layer, and raises a small blood-blister, in which case the effused blood rapidly dries to an almost black blood scab, and a small ulcer is often formed beneath. After a few days the eruption loses its bright colour and turns to a dark purple, finally fading to a brownish colour before disappearing. The mucous membranes are not usually affected, and the gums are not usually swollen. The eruption comes out again and again in crops, associated with, or perhaps alternating with, pain in the joints, and so the disease as a whole usually lasts five or six weeks, and then recovery gradually takes place, leaving the patient with a rather marked anæmia similar to that seen after erythema multiforme.

In the form associated with Henoch's name, instead of the marked muscular and joint pains there is, as a concomitant symptom, a considerable amount of gastro-intestinal disturbance, often associated with vomiting, which may be blood-stained, colic, and the passage of blood per rectum; otherwise the symptoms are much the same. In other cases, again, there may be signs of involvement of the kidney, albuminuria, hæmaturia, and pain in the back; and in all severe cases bleeding may take place into almost any organ, and perhaps especially into the serous cavities, such as the pleura.

Werlhof's disease (purpura hæmorrhagica) may possibly be simply another variation of the same disease, but it is usually kept separate on account of the fact that the rash is of a very different appearance. The skin lesions in this disease usually

take the form of distinct, flat, large hæmorrhages, which, beginning as pin's-head-sized lesions, rapidly enlarge to the size of the hand or much larger, almost the whole of one surface of a limb being discoloured by an irregular patch. Hæmorrhages into mucous membranes and elsewhere are much commoner in this form than in others, and the general symptoms are indefinite, being those of very severe malaise and prostration when present at all.

Etiology and Pathology.—In these diseases, as in erythema multiforme, we have to deal with changes in the blood or vessel wall, or both, but though I have not sufficient personal experience to lay down any dogmatic statement, I may say that I have by no means constantly found an alteration of the coagulability of the blood. It is probable that rupture of the vessels has always occurred in these purpuric eruptions, and it is therefore quite possible that the change in the blood is a toxic one acting upon the vessel walls rather than a mere increase of diffusibility.

As regards the etiology, that of Schönlein's and Henoch's forms is commonly regarded as rheumatic, but I do not find the evidence in any way convincing, and it is now so well known that toxins causing erythematous or purpuric eruptions are especially apt to cause synovitis that it seems an unjustifiable assumption to call the joint symptoms in these diseases rheumatic.

In more than one case of Werlhof's form there have been cultivated from the spleen after death bacilli which have proved capable of causing hæmorrhage effusions when inoculated into lower animals. At the same time, such observations must be accepted with the utmost reserve, and it is better to admit that the cause remains unknown at present.

Course and Prognosis.—In most cases the course lasts from ten days in very mild cases to six weeks in moderate and three months in severe cases. Although the prognosis is usually favourable, and almost invariably so in Schönlein's and Henoch's forms, in severe cases of purpura hæmorrhagica death not very uncommonly occurs. The grave signs are a very widespread effusion, which may give rise to large areas of necrosis of the skin, and especially any extensive renal

symptoms. In some cases, although the disease is recovered from, the kidney is permanently damaged.

Diagnosis.—With the exception of the borderland cases lying between purpura and erythema multiforme, where a differential diagnosis is unnecessary, there is usually no difficulty. In some very neglected children flea bite may be so extensive as to cause confusion, but a careful examination in this case will always reveal the characteristic signs of the recent bite. An examination of the gums and the presence of the gradual failure of strength should be sufficient to distinguish scurvy, and careful attention to the general symptoms and the mode of development of the rash should prevent a mistake in the case of the rash of scarlatina, measles, or smallpox, when these become hæmorrhagic.

Treatment.—In a disease where so little is known of the causation, treatment is necessarily unsatisfactory. In all cases, however slight, the patient should be immediately put to bed, because the horizontal position with complete rest is one of the best methods of minimising the hæmorrhage, and we have already seen that this is always worse on the lower extremities when the patient is up. Secondly, diet should consist almost solely of milk, for the reason that if any gastro-intestinal toxæmia is present, a simple milk diet often allows a more rapid return to normal conditions, and also because, owing to its richness in lime salts, milk increases the coagulability of the blood and diminishes the tendency to hæmorrhage.

Next as regards drug treatment. The salicylates have very many adherents for the treatment of the eruptive purpuras, on the ground that they are rheumatic in origin; but, as I have already said, I do not believe in the rheumatic theory of purpura, and, further, I would say that, in my opinion, the inefficiency of salicylates to control the symptoms is to be taken as evidence that the disease is not rheumatic in the sense of acute rheumatism. Two drugs only have appeared to me to be followed by immediately beneficial results in many cases, even in out-patients who are on their feet, and these are turpentine and quinine. The former seems to be efficacious distinctly more often than the latter, and for this reason I always prescribe it in a mixture containing 5 to 15 minims to the dose, according to the age of the patient.

In cases where this fails, quinine in 2 to 5 grain doses may be tried, and if in three or four days marked improvement does not occur it should be discontinued. The administration of lime salts in the form of calcium lactate, in doses of from 5 to 10 grains three times a day, may be tried in cases in which the coagulability of the blood has been determined and found slow, but I must admit that I have not had great success with lime in the treatment of purpura.

Local treatment is unnecessary, unless the hæmorrhage raises the epidermis into the little blood-blisters, or ulcers are present, in which case the part is best powdered thickly with equal parts of powdered boric acid and starch, and bandaged up. Greasy preparations should not be applied, as they macerate the part and increase the tendency to suppuration.

Uræmic Rashes.

A note on these may perhaps be of value, as they lie on the borderland between the erythemata and purpura. These rashes, though rare, are met with in sufficient frequency to render them important. They appear usually as punctate erythemata, not unlike scarlatina, which have a special tendency to become hæmorrhagic on the extremities. In addition to this, small vesicles often appear, and more rarely bullæ, and these may become slightly purulent; but they usually dry up very rapidly, and there is a good deal of irregular desquamation. The condition and smell of the patient render the diagnosis fairly easy. The eruption is of very grave prognostic significance.

CHAPTER VIII

PEMPHIGUS—DERMATITIS HERPETIFORMIS—EPIDERMOLYSIS BULLOSA—HERPES

The actual relationship between the first three of these diseases is doubtful, and will remain so until more is known of their etiology. It is probable, however, that the first two are very closely related, while the third is totally distinct.

Pemphigus.

The eruptions to which the term pemphigus has been applied are:

1. Pemphigus Acutus Neonatorum.—This has been already dealt with among the pyogenic infections, to which it undoubtedly belongs.
2. Pemphigus Syphiliticus.—This is also almost confined to children, but it will be dealt with under syphilis.
3. Pemphigus Leprosus.—Merely a bullous form of leprosy.
4. Pemphigus acutus malignus.
5. Pemphigus vulgaris.
6. Pemphigus foliaceus.
7. Pemphigus vegetans.

Pemphigus Acutus Malignus.—This disease might well be taken out of the pemphigus group even now, and almost certainly will be in a short time, since it appears to belong to the acute infective processes. It occurs most commonly among butchers, or those who handle hides, and there is usually a history of some trifling wound which has generally healed before the outbreak of the eruption.

Symptoms.—The first symptom is the appearance of a large, clear, tense bulla, usually situated on the hand in the neighbourhood of the former wound, and occurring from a week to a month after damage was done. Rather rapidly other bullæ

occur on the arm and all over the cutaneous surface, and the patient develops fever, albuminuria, vomiting, and diarrhœa, and shows all the symptoms of a severe septic invasion. The disease lasts from one to three weeks, and usually terminates fatally, the patient dying of exhaustion. A few cases have, however, recovered while taking quinine, and this drug appears to be the only one at present known to be of service.

The *anatomy* does not differ from that of ordinary pemphigus sufficiently to require separate description. A diplococcus has been cultivated by Demme, Bulloch, and others, from the clear and unruptured bullæ, and this organism caused fatal results when injected into the pleuræ of guinea-pigs, though it was apparently not pathogenic when introduced subcutaneously.

The *treatment* should consist of a supporting diet with alcohol, and, as already mentioned, quinine. Locally, the ideal treatment would probably be the continuous bath with boric acid, but short of this the patient may be placed on a water bed and carefully dressed with boric acid ointment.

Pemphigus Vulgaris.—The *symptoms*, to all intents and purposes, are limited to the outbreak of clear vesicles and bullæ. Either a small or great number of bullæ make their appearance suddenly on the skin.

The blisters vary in size from that of a pea to that of a pigeon's egg, or sometimes even longer. They rise from apparently normal skin, are tense, thick-walled, and filled with clear yellowish serum occasionally tinged with blood. The bullæ are generalised, and show a certain amount of bilateral symmetry; they are not usually grouped, but may be so in some cases (pemphigus confertus). The health is maintained at first, and the subjective symptoms are usually limited to the soreness caused by the denuded epidermis. Itching may, however, be a marked symptom (pemphigus pruriginosus). With regard to itching, and also to grouping of the lesions, there is some difference of opinion, many observers regarding itching and grouping as sufficient to take the eruption into the class of dermatitis herpetiformis.

After a day or two the bulla becomes slightly cloudy, from the leucocytosis which is produced by the inevitable contamination of the serum by staphylococci. The bulla soon bursts



PEMPHIGUS VULGARIS

and the horny layer is reproduced, leaving a shining red spot to mark its former existence. In some cases, probably from a secondary infection, the floor becomes covered with a greyish membrane (P. diphtheriticus), while in others sloughing occurs (P. gangrænosus). The mucous membrane of the mouth, vagina, and eye may be affected, and in the last-named position there is sometimes associated a curious condition known as pemphigus conjunctivæ, or "essential shrinking," in which the formation of adhesions and cicatricial contraction causes obliteration of the conjunctival sac and loss of the eye. In severe cases the pain, the loss of sleep, the septic absorption, and possibly the actual loss of serum, cause considerable exhaustion, and sometimes death. The individual lesions are not of long duration, generally healing in a week or so, but new bullæ come out, so that the disease is essentially a chronic one. Occasionally ordinary pemphigus may develop into P. foliaceus and possibly into P. vegetans.

Etiology and Pathology.—The etiology is entirely unknown. Anatomically the bullæ are produced sometimes beneath the horny layer, sometimes beneath the whole epidermis. The fluid in the blister is rich in eosinophile corpuscles, and an eosinophilia of from 5 to 70 per cent. of all white corpuscles may be found in the blood. The deeper parts of the skin, the papillary body, and corium show the simple signs of acute leucocytic infiltration, many of the leucocytes being eosinophile.

The *prognosis* is always grave, and is better in young patients than in old. Relapse is not uncommon after apparent cure. The *diagnosis* is made from the appearance of a generalised eruption of round or oval bullæ on apparently healthy skin. It is often impossible to tell from a single observation whether the case is one of pemphigus or dermatitis herpetiformis, but mistakes with regard to other diseases should not occur, except perhaps with epidermolysis, where the seat of the bullæ on positions exposed to trauma and the history of the case will clear up the diagnosis.

Pemphigus Foliaceus.—This disease, which is very rare, may come on either as a primary disorder, or may supervene on common pemphigus and possibly dermatitis herpetiformis. The essential characteristic is the occurrence of a very flaccid bulla, which soon bursts, and then, instead of healing, is followed

by the extension of the vesication under the frayed edges of the blister. Discharge is very slight, and, as the disease progresses, almost the whole cutaneous surface may be involved in a peculiar kind of exfoliative dermatitis. This may be easily mistaken at first for true dermatitis exfoliativa, but careful examination will reveal the fact that the essential lesion is an eccentrically spreading blister. Owing to the vast areas involved sepsis is almost certain to occur, and the patient becomes covered with evil-smelling crusts, secondary pus infections, and fissures. The hair falls out, and the nails become discoloured, friable, and deformed. A curious symptom, almost but not quite confined to this disease, is a condition of the epidermis in which the superficial layers may be slipped along by moderate pressure and rubbing, even in the apparently unaffected parts of the skin. Microscopic investigation shows this to be due to loss of the fibrillæ connecting the epithelial cells. The patient undergoes a progressive and intense emaciation, and finally succumbs to lung complications, or diarrhœa and exhaustion.

Pemphigus Vegetans.—This disease, also very rare, is still the subject of discussion, some authors regarding it as a form of true pemphigus, while others maintain that it is independent from the first. The balance of opinion is in favour of the belief that there is nothing characteristic of the early lesions, but there is a special tendency for the mouth to be first, or at all events very early, affected. The pathognomonic peculiarity is the development of papillary overgrowth from the bases of the ruptured bullæ, and this is especially well seen in the hot, moist regions, the axillæ, groins, and anal fold. The hair and nails are often lost, and the whole surface gradually becomes invaded, so that the peculiar, offensive, sweetish-smelling discharge renders close proximity to the patient almost unbearable. Even quite early there is apt to be a very marked tremor, upon which Herxheimer lays some stress as an aid to diagnosis. The *prognosis* is invariably fatal, the patient dying of exhaustion or septic complications. Anatomically the whole of the base of the bulla is found to show a marked epithelial proliferation, with a heavy infiltration of cells beneath. The *pathology* is quite unknown.

Treatment.—A pemphigus patient should be kept in bed, no matter how mild the attack. If severe, a water mattress should be used, or, where obtainable, the continuous irrigation bath. Diet should be simple, but there seems to be no special indication for any particular regulation. Alcohol is contra-indicated, unless the depression is so profound as to demand it for the heart's sake. Two drugs at present stand pre-eminent in the attempt to cure pemphigus—namely, arsenic and opium. They may be combined, or, if used separately, it is well to try arsenic first, as it is certainly successful in a larger proportion of cases. It must be rapidly pushed to physiological limits, and may be begun in doses of 5 minims of Fowler's solution, and raised 2 minims every three days until the symptoms abate or the limit of toleration is reached. In two cases of pemphigus vegetans under my care the intravenous injection of salvarsan was tried. In one of them the lesions cleared up almost entirely, and the patient was alive and in fair health four years later.

In the second case no favourable action was observed. This case cleared up almost completely under intravenous injection of compatible, healthy, human blood, but relapsed in ten days, and was not benefited by further injection of blood from the same or another donor, and finally died within six months of the beginning of symptoms.

If arsenic prove unavailing, it may be stopped and opium substituted, and, again, the dose must be raised until benefit is seen to accrue or it is deemed dangerous to proceed. Sleep must be procured, and, where opium is not used, may be generally obtained by the use of phenacetin or one of its allies. Locally, the bullæ are best opened and drained, as this procedure often gives relief, and they should then be dressed with some bland ointment. The great point about the ointment is that it should be of a high melting-point, so as to insure a pad of grease between the raw epidermis and foreign bodies. (It may be remarked that this was long ago pointed out by Lister as the main requirement of a protective ointment, but it has been to a certain extent neglected.) For this purpose boric acid ointment made with a rather stiff paraffin base may be used, and should be spread $\frac{1}{16}$ inch thick on heavy muslin, so as to form a completely protective film.

In cases where there is already much sepsis it is advisable to begin with a boric acid bath ($\frac{1}{2}$ pound of the crystals in 30 gallons of water). It is also better, where there is any tendency towards the formation of pus beneath the edges of the bullæ, to clip these carefully away, and the base may then be powdered with a little bismuth oxide before applying the ointment. Where pain is very distressing, the continuous bath treatment should be used if possible, or where unobtainable, as will generally be the case, the places may be dusted with a little anæsthesin powder diluted 1 in 10 with the bismuth oxide.

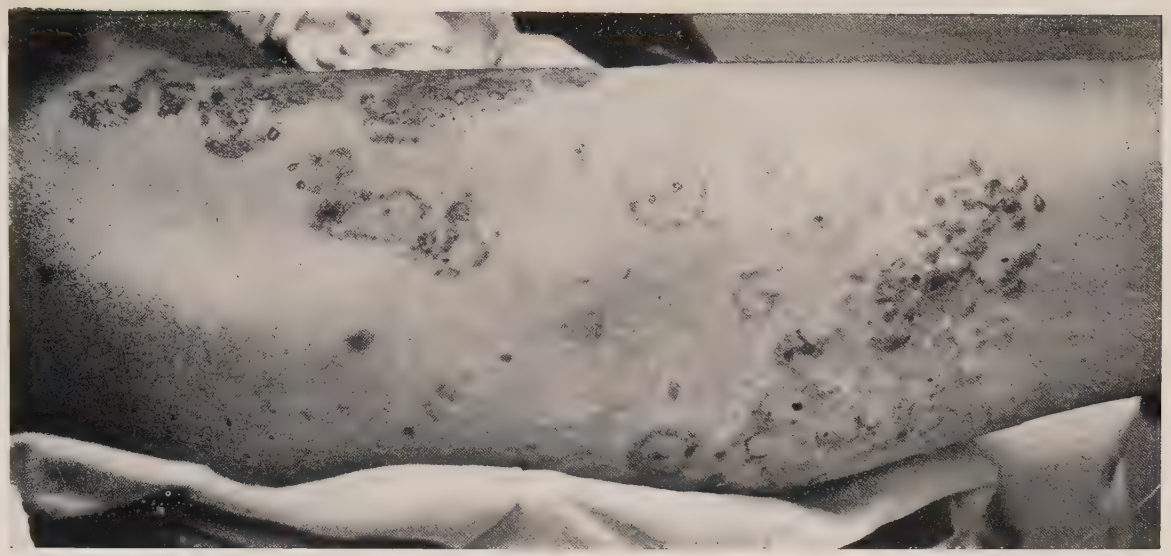
Dermatitis Herpetiformis (Herpes Gestationis, one form only).

This disease, in its classical form, has a fair number of distinctive points from pemphigus, but authorities are not in complete agreement as to where the divisional line should be drawn.

Two essential points should be present, in my opinion, in order to class a pemphigoid eruption as dermatitis herpetiformis: first, the formation of herpetiform groups of *small* vesicles; and, secondly, the occurrence of other skin lesions.

Symptoms.—The eruption of dermatitis herpetiformis may thus be described: There are outbreaks in successive crops of erythematous papules, wheals, small vesicles tending to form rings, which spread centrifugally by the appearance of new vesicles beyond the old, and bullæ indistinguishable from pemphigus. In certain cases all these symptoms do not appear together in each attack, but as it would be obviously impossible to make the diagnosis of dermatitis herpetiformis in the absence of all vesication, so it is, in my opinion, unjustifiable to make the diagnosis in the absence of both herpetiform grouping and erythema, unless one knows the particular case and has seen the classical combination in a former outbreak. Some observers describe a pustular form, but unless one includes the disease known as impetigo herpetiformis, I do not think primary pustulation is ever present.

The length of life of the lesions is that of any ordinary erythema or vesicle, but the tendency to spread centrifugally causes a longer persistence of the outbreak as a whole. The



Dermatitis Herpetiformis, Showing Erythematous Rings and Herptiform Groups of Vesicles

rash is always symmetrical, but beyond this there is no special localisation. The mouth and eyes are not infrequently affected.

The health is usually, though not invariably, well maintained, and the chief symptom is the uncontrollable itching, which is somewhat relieved after the vesicles are ruptured. It is often said that the nervous system is affected, and that the disease is more often seen in nervous individuals. This is not my experience; but the disease being a rare one, I have not sufficient cases to justify a dogmatic opinion. On the other hand, where the itching is so bad as to deprive the patient of sleep and harass him through all his waking moments, the nervous system naturally suffers.

Course.—The disease is essentially a chronic one, consisting of a series of attacks, which sometimes follow each other so rapidly as to produce a continuous eruption, and sometimes leave the patient free for long periods. As to whether an entire recovery ever takes place in the sense of being permanently free from further attacks I cannot say, but in all the cases I have seen recurrence has taken place sooner or later, except in the gestational type.

Etiology and Pathology.—It may be said that we are in complete ignorance of the etiology, since, although many cases have been ascribed to worry and shock, in a greater number no obvious cause can be found. I have carried out all the examinations claimed to reveal etiological factors without success.

Repeated search has failed to demonstrate the presence of the protozoal organisms described by some observers. Every examination of the urine, fæces, and blood that I could devise has been carried out without finding anything of value. In particular, I may mention that Bacillus coli was plentiful in the fæces, contrary to the statement of one observer.

To this state of ignorance, however, there is an exception in the case of so-called "herpes gestationis" or "hydroa gravidarum." In this instance there seems to be little doubt that the changes concomitant with pregnancy and child-birth are responsible for the eruption. The disease is treated here under the heading of dermatitis herpetiformis, since it is generally admitted to be identical in its nature and appearance,

though it differs in its course. It usually comes out about the third or fourth month of pregnancy, and persists until the labour is over, recurring again and again with each successive pregnancy. It may, however, be delayed, and occur at the puerperium, or even a short time after; but it almost invariably runs a comparatively short course, and disappears as the influences of the pregnancy and child-birth die away.

The general appearance and course of dermatitis herpetiformis suggest a chronic toxæmia varying in intensity, and one case which I have had under my care seems to lend support to this view, since a blood examination showed persistent slow coagulation. Anatomically, one almost invariably finds a pronounced eosinophilia of the circulating blood and the blister fluid. The blister is formed at a variable depth, most commonly raising the whole epidermis and lying between it and the corium; on the other hand, the horny layer alone may be raised. The other appearances are limited to the presence of acute leucocytic emigration with a high proportion of eosinophiles.

The *diagnosis* may be extremely easy in the presence of all the forms of eruption, or impossible without watching where it is temporarily uniform. From pemphigus, only the presence of other lesions than the clear bulla rising from apparently healthy skin can decide. From erythema multiforme the points of distinction are the slighter disturbance of health, the slighter tendency to the occurrence of well-marked erythematous lesions, and the fact that only very rarely are concentric rings formed. Hydroa vacciniforme is a very rare disease, leaves scars, and occurs only when the sun is bright.

Impetigo herpetiformis is a severe and fatal malady, and shows lesions which are primarily pustular.

Treatment.—Rest in bed and a bland diet are important, and, above all, freedom from excitement and worry.

Of drugs, I find arsenic to be the only one upon which any reliance can be placed. Further experience of this disease has led me to change my opinion, and I find that it is specific in perhaps the majority of cases. I have also found that it is of value only when given continuously, and that the intravenous injection of arsenobenzol and its congeners is useless.

Arsenic only controls and does not cure the disease, so that one is brought up against the difficulty that one has finally to choose between chronic arsenical poisoning and the torture of the disease.

I have tried the intravenous injection of fresh, healthy, compatible human blood, as recommended, but entirely without success.

Epidermolysis Bullosa (Congenital Traumatic Pemphigus).

This disease has usually the adjective *hereditaria* added, but since sporadic cases are known with almost as great a frequency as hereditary or family cases it is better to omit it. The other title, congenital traumatic pemphigus, appears also to be incorrect, as acquired cases exist.

Symptoms.—The disease consists in the occurrence of bullæ from pressure, friction, or a blow; in other words, a tendency of the skin to react, with the formation of bullæ, to any mechanical insult. It is usually first noticed when washing the infant, and gives rise to the impression that it has been scalded. Later, the characteristic feature is noticed, and the child is never without these traumatic bullæ, unless wrapped in cotton-wool.

In adult life a curious, fine atrophy develops with the formation of wrinkles enclosing lozenge-shaped areas, and this is apparently not secondary to former bullæ. The teeth are usually lost early, and the nails almost invariably suffer from damage to the matrix. In bad cases a similar condition of the alimentary canal may apparently co-exist, the ingestion of irritating food being followed by the vomiting of casts of the œsophagus, and the passage of blood from the anus. The disease is fortunately rare, as no treatment is of avail.

Hydroa Vacciniforme.

This is a very rare disease, chiefly affecting boys, in which the exposure to strong sunlight determines the outbreak of groups of deep-seated vesicles which leave a scar on healing. The disease tends to improve as the patient gets older, and the only treatment of any avail is careful protection from the sun's rays, if necessary, by brownish dyes.

Herpes.

This is an eruption associated with, and probably produced by, hæmorrhagic inflammation of one or more posterior root ganglia.

Two main types may be distinguished—namely, the recurrent or so-called catarrhal group, including herpes facialis and genitalis, and the systematised or herpes zoster. Though zoster means a girdle, the adjective is now applied to eruptions of the same type, even when occurring in lines on the head or extremities, and is, therefore, only used to distinguish it from the recurrent type.

Herpes Catarrhalis.—On the lips this is a frequent and painful affection, many people having attacks with every cold, while a more severe form occurs with pneumonia and other acute fevers.

The *symptoms* are, after a few hours of itching and burning, the appearance of one or more vesicles, either singly or in clusters on the lips, nose, or cheeks. These take about ten days to dry up and heal, sometimes, though not often, leaving scars. No treatment beyond protection, preferably with dry powders (such as bismuth oxide), is of any avail during the attacks, but a long course of arsenic is said occasionally to diminish the frequency of their occurrence. In children a similar condition often occurs on the cheeks as the result of slight deviations from health, but this does not persist into adult life. On the genital organs, and especially on the penis in men, the disease is also common, and is said to be more frequent after impure connection. A somewhat similar eruption occurs on the genital region in some gouty patients. Careful directions are often given for the differential diagnosis from syphilis, but these appear to me to be superfluous, as every case in which the risk of infection is known should be watched for the latter disease.

Herpes Zoster—*Symptoms.*—This eruption may come out as the first symptom, or may be preceded by lancinating pain in the affected area and general malaise. A curious point, which is only to be observed in cases where the pain sends the patient to seek advice before the appearance of the eruption,

is that the **lymphatic nodes corresponding to the affected area are enlarged and tender before the appearance of the eruption.** The eruption itself consists of bright pink patches, on which groups of thick-walled pearly vesicles develop rapidly. These persist for several days, and then dry up and fall off, sometimes leaving a scar. Occasionally hæmorrhage occurs into the vesicles, giving them a dark purple colour, and in such cases scarring always results. In others there may be actual gangrene of considerable areas of skin, or the simple eruption may become seriously infected with the common pyogenic organisms, and troublesome ulceration then occurs. The localisation of the eruption corresponds to the areas governed by certain segments of the cord, and these have been mapped out by Head with some exactness. The whole area is not affected, but chiefly what Head terms the "maximum points." The symptoms during the eruption are generally superficial burning associated with deep neuralgic pain. The latter may persist long after the disappearance of the eruption, especially in elderly people.

The *etiology* of the disease is unknown, with the exception of those cases in which the ingestion of arsenic has been the determining cause, or the pressure of a tumour on a nerve. Since the disease rarely attacks the same individual twice, it has been suggested that it is of the nature of an acute specific fever, and the lymphadenitis is certainly suggestive of some micro-organism. The anatomy of the zoster type, and apparently of the catarrhal as well—at least, in those cases occurring in pneumonia—shows a hæmorrhage into the corresponding root ganglion. The local skin lesion shows an intense leucocytic inflammation in the corium, with the raising of the whole epidermis in the blister. The deeper cells of the epidermis undergo a curious (ballooning) degeneration, with the formation of large, round, mono- and multinuclear cells, which have been mistaken for protozoa.

Course.—In herpes of all varieties it may be said that the eruption, when first seen, is already so far advanced that it must run through its complete course. This occupies from ten days to three weeks, according to the destruction produced in the early stage, hæmorrhagic and gangrenous types necessarily requiring longer for complete healing.

Diagnosis.—This offers practically no difficulty in the case of herpes zoster and herpes facialis, but in the genital variety it may be impossible to distinguish it at first from a venereal sore. A few days' observation will, however, soon clear up the difficulty with regard to soft sore, and if any risk has been run a longer period should always be devoted to watching for signs of syphilitic infection.

Treatment.—This divides itself into the treatment of the eruption and that of the subjective symptoms. The eruption, if seen early in the stage of unruptured vesicles, should be treated by covering it in with Unna's zinc gelatin paste, or, if this cannot be applied, by smearing it thickly with Lassar's zinc paste and protecting with cotton-wool. If the local pain is very severe, the vesicles may be snipped with sterile scissors and dressed with zinc paste, to which 5 per cent. of anæsthesin has been added. In some cases of recurrent facial herpes patients have told me that, on the occurrence of the first burning sensation, the eruption has been aborted by holding against the area a pad of dry linen heated in front of the fire until almost scorching.

For the neuralgic pains sometimes associated with the eruption drugs of the antipyrin class are usually efficacious, but in some cases the pain resists all treatment. Should antipyrin and its allies fail, gelsemium (♏x. of the tincture three times a day) or ammonium chloride (gr. x. every hour for six hours) may be tried.

CHAPTER IX

SEBORRHŒA—HYPERIDROSIS—ACNE ROSACEA

Seborrhœa.

This term has been applied to several conditions, and some authors still recognise a dry and an oily form. Careful examination shows, however, that the accumulation in the so-called dry form of seborrhœa (seborrhœa sicca) is in reality made up of horny scales and not of sebum. There remains, therefore, only the oily seborrhœa for discussion, and how far this can be distinguished from hyperidrosis is not yet settled. Except on the palms and soles, where there are no sebaceous glands, the two types of cutaneous gland, the sebaceous and sweat, lie so close together that it is impossible to separate the secretions completely. In all cases of seborrhœa there is probably associated hyperidrosis, though the former secretion predominates in those cases to which its name has been given.

By seborrhœa, then, we mean an excessive secretion of the oily material from the sebaceous glands, but here at once we are met with the difficulty of deciding what is excess. It may be noted that black races usually show an amount of sebaceous secretion which would be considered excessive in the white, and some individuals of white races apparently produce normally a much larger amount than others. It has, therefore, come to pass that by seborrhœa many mean the morbid complications dependent on a greasy state of the skin. In any given case, however, a degree of secretion unusual for the particular individual may be called forth by external or internal causes.

The chief external cause is heat, and it is probable that the free secretion of grease is a device for mitigating the destructive action of the sun's rays, and serves a useful purpose. Living in an overheated and close atmosphere produces the same increase of secretion without its being required. The

internal causes may be either nervous or toxic. As an instance of the former may be given the excessive secretion on the forehead which occurs on straining the eyesight by close application to fine work, and of the latter the seborrhœa so commonly associated with intestinal and hepatic insufficiency.

True seborrhœa is rare before the age of puberty, at which period it occurs with great frequency, probably owing to the rapid growth of the sebaceous glands and to the commencing development of facial hair in the male. If left untreated, the condition generally passes off after a variable number of years. It is difficult to estimate the importance of the micro-organisms present in the secretion as regards their share in the production of the excessive flow, but I am inclined to think that they are not causal agents of the excessive secretion, though responsible for many of the symptoms complicating it.

As regards treatment, I believe that permanent benefit is obtained only in those cases in which an internal factor can be found and successfully treated. Local treatment with almost any drug causing exfoliation, such as sulphur, resorcin, salicylic acid, or soft soap in strong concentration. will for a time almost entirely inhibit the secretion, but after a few weeks or months it regains its former abundance.

The X rays, if pushed to the point of producing atrophy of the glands, will, of course, cause a permanent cure.

Hyperidrosis.

Excessive secretion of sweat may be either general or local. In the former it is invariably dependent on the general state of health, and in the latter it is often so, but may be due to more local causes. General debility, more especially of the nervous system, exophthalmic goitre, and alcoholism, seem to be the most common constitutional states associated with a febrile hyperidrosis. In local hyperidrosis it is most usually the hands and feet that are affected. In every case of hyperidrosis of the feet the condition of the plantar arch should be examined, as it is frequently partially or completely broken down. It is probable that the muscular weakness causing the talipes valgus is part of a general process causing also the hyperidrosis, but, once established, it appears to keep up the

sweating, and many cases are cured by properly supporting the arch.

Where the sweat becomes contaminated with certain micro-organisms it may decompose, with the development of offensive odours, and to this condition has been given the name of *bromidrosis*, but it is really merely a contaminated hyperidrosis.

The *treatment* must be directed, in the first place, to the constitutional condition, and in the absence of definite indications, such as anæmia or dyspepsia, I have found full doses of strychnine most useful. Belladonna relieves for a time, but usually not unless pushed to the degree of causing discomfort in the throat, and the abnormality recurs immediately on cessation of the drug. Sulphur taken internally in drachm doses three times a day has been recommended, but I have not seen any benefit result from its use.

Local treatment varies according to the presence or absence of inflammation. If it be present, the case resolves itself into one of the septic eczema. In non-inflammatory cases there are two drugs which, in my experience, stand out above all others. These are salicylic and boric acids. They should be used dry in the form of a powder, and I usually use pure boric acid powder to which has been added 2 per cent. of salicylic acid. Bromidrosis ceases at once under its use, and the feet are usually dry in a week. It is necessary to keep the treatment long after the apparent cure, and if no constitutional cause can be found it may be necessary to persist with it indefinitely. Other drugs which have been recommended are formalin (1 per cent. solution), chromic acid (5 per cent.), and crude hydrochloric acid. All these (I have not tried the last) are efficient for a time, but they seem to act by parching the superficial horny layer, and, after this has desquamated off, the secretion returns in excess. Personally, I believe all strong remedies are essentially bad, as I have repeatedly observed hyperidrosis occur in persons who have been brought into constant contact with strong chemicals, such as perchloride of mercury, formalin, etc. Where the hands are affected the boric acid treatment is hardly applicable, and some cases do well with gentle galvanism daily; but the condition is far less common and distressing on the hands than on the feet. Much temporary benefit may be derived by

sponging with a 10 per cent. solution of crystalline aluminium chloride, but if the condition is really formidable nothing is so efficacious as the X rays.

The treatment by X rays must be pushed to atrophy of the sweat glands, and I find that from three to five pastille doses, with an interval of three weeks between each pair, will cause permanent cure. There is some risk of a mild dermatitis and of telangiectatic atrophy, which must be explained to the patient.

Chromidrosis, if genuine, is caused by the contamination of the sweat by chromogenic organisms, such as *Bacillus pyocyaneus* (blue sweat) and Leptothrix (red sweat), but one should always suspect some feigned eruption when the colour is produced on exposed parts, such as the face.

Acne Vulgaris.

This is a polymorphic disease usually affecting adolescents, but not infrequently occurring throughout early adult life.

The skin of those suffering from acne is almost invariably in a condition of oily seborrhœa, though an occasional and, as one might say, accidental acne lesion may occur even on dry skins. Further, the lesions of acne vulgaris are almost limited to those positions where the sebaceous glands are naturally large—*i.e.*, the face, especially the forehead, nose and chin, the ears, the chest, and the back. The upper parts of the arms are sometimes affected, and a folliculitis of the thighs is not so very infrequently associated, but the true acne lesion is not well developed there.

Symptoms.—The first lesion to appear is the comedo, a whitish or black point (the familiar "blackhead") buried in the mouth of the sebaceous follicle, and if of any size causing a slight elevation above the surrounding skin. Where these are numerous and the eruption is limited to them it is sometimes known as acne punctata. The next stage is the occurrence of inflammation around the comedo, and this may either be confined to a superficial redness and slight superficial suppuration (acne papulosa et pustulosa), or there may form a regular nodose thickening around it, appearing as a bluish-red and very tender elevation of about the size of a



Severe Acne Vulgaris, Showing Comedo, Pustules and Cyst Abscess

dried pea, and showing no superficial pustulation at all (acne indurata vel nodosa). In the superficial type the lesions resolve fairly rapidly—that is to say, when inflammation once begins—and the process is usually at an end in any given lesion within the week. It must be clearly understood that not every comedo develops into an inflammatory lesion.

In the nodose form, on the other hand, the inflammation occurs very indolently, and there may be scarcely anything to see for two or three days, merely a slight swelling and tenderness being present. This slowly becomes of a bluish-red colour and more circumscribed, and after a week or so may burst and emit a variable amount of pus, often mixed with some gelatinous material; or it may slowly subside again without completely resolving, in which case it may very likely recrudesce at some future time.

The lesions of the nodose form often leave severe pitted scars, as the suppuration has taken place so deep in the skin, and not infrequently nodular thickening may be left as well. In very severe cases there may occur a sort of cyst-abscess—that is, the lesion swells to the size of a hazel-nut and, on being incised, reveals a mixture of pus with caseous material like that in an ordinary sebaceous cyst.

Comedo may also in some cases develop to an enormous size, so that, apart from all suppuration, it may cause atrophic scarring from pressure, and sometimes two or more may unite so as to leave behind them after expression a cribriform appearance of the skin. The lesions are, as a rule, more or less painful according to their depth and intensity, and those situated over bony parts, such as the forehead, are naturally more painful than those on the cheeks. Occasionally the eruption is associated with itching, but this is exceptional.

Course.—As a rule, acne of the adolescent tends to get well by itself, but it often takes a long while to do so, and may cause permanent scarring. Many cases, on the other hand, do not get well at all without treatment, and this is especially true when it occurs later in life—from twenty-five to thirty-five.

Etiology and Pathology.—The age of puberty is evidently a strong predisposing cause, since a certain amount of acne is almost the rule at this period. This is probably due to the seborrhœa, which has already been described as occurring

especially in adolescents. The other causes are disorders of the alimentary tract and the pelvic organs in women.

When one examines a comedo, one finds that it consists of a number of concentric sheaths of horny cells enveloping in the centre and between each layer of cells colonies of the micro-bacillus, and Sabouraud insists that these are the cause of the excessive secretion, whilst Unna and Gilchrist both believe it to be the cause of the comedo and the suppuration.

A careful study of the question leads me to hold an opinion somewhat different from that of all these observers. It appears to me that the seborrhœa is an independent feature, and is the primary cause of the disorder. The micro-bacillus grows very freely in the excessive secretion, and enters the neck of the patulous follicle. Acting here either mechanically or by a toxin, it sets up irritation, and the epithelium endeavours to deal with it in the way in which the epidermis always deals with foreign bodies– namely, by encysting it with horny cells. The micro-bacillus is, therefore, in my opinion, responsible for the comedo, but not for the seborrhœa. As regards the suppuration, I believe it to be due to the ordinary pyogenic staphylococci, and the reasons I give are, first, that these organisms are almost invariably to be cultivated from the pus; secondly, that films of the pus often show some of these organisms within the leucocytes, thus proving that they are not only a surface contamination; thirdly, that the patients on examination usually show a low opsonic index to staphylococci.

In connection with acne, an interesting question is that of the so-called "grouped comedo" of children and infants, and the artificial comedo of adults.

It is not very uncommon in infants to find on the chest or back small patches of comedo, either simple or inflamed, and passing through all the stages of ordinary acne. Most, but not all, of these cases are found on inquiry to have been rubbed with some oily liniment, and I have seen the same produced in an adult by rubbing with turpentine liniment. In older children the trouble may be found at the margin of the hair, running back into the hair itself, but as far as my experience goes it is always limited to boys, and may be due to a greasy cap. Lastly, comedo and acne may be the result

of chlorine vapours, and this is dealt with under traumatic dermatitis.

The anatomy of the acne lesion shows a variable amount of central suppuration surrounding and below the comedo, and in severe cases there is always a regular granuloma with numerous giant cells surrounding the lesion.

Diagnosis.—There is no difficulty in making a correct diagnosis, if only care be taken to identify the various stages of the disease and trace the pustule from the comedo. It may be worth stating that the presence of patches of grouped pustules with comedo is suggestive of iodide or bromide eruption.

Treatment.—Acne may be one of the easiest or most rebellious of skin diseases to treat, according to its severity. Even in the common adolescent form it is always best to inquire carefully into all matters of general health. The commonest irregularities are indigestion, constipation, anæmia, pelvic troubles in women, and in some young people a low coagulability of the blood. Any of these errors should be treated with appropriate remedies, but if none are found there are still some drugs which appear to have a direct influence. Calcium sulphide has been warmly recommended by some, both for acne and boils, and, if used, much larger doses should be given (3 or 4 grains) than are recommended in the pharmacopœia. Preparations of nuclein, either from yeast or thymus gland, are occasionally useful, and have been already referred to under the heading of suppurative diseases of the skin. Wright's antistaphylococcic vaccine sometimes acts marvellously well, but it is to be remembered that the suppuration of acne is largely, if not wholly, secondary. Menthol in doses of 1 or 2 grains after each meal is a very favourite remedy with me. It has the advantage of subduing certain gastric reflexes and flushing of the face; it is an intestinal antiseptic to some extent, and it is quite definitely anhidrotic in its action, and therefore probably also antiseborrhœic. Ichthyol in 5 grain doses three times a day is a great favourite with some, and I have certainly seen benefit from it.

Local treatment should begin with the removal of the comedo. There are many forms of instrument which are manufactured, but the one I use is a simple piece of glass

tubing cut off square and held in the Bunsen flame until the end closes sufficiently to leave only a small aperture, which may be left larger at one end of the tube than the other. The edges of such an instrument are extremely smooth and rather thick; the comedo is easily seen through the side, so that one can accurately centre it, and it is so cheap that one can give it to out-patients. Before attempting the removal it may be necessary to wash the face with very hot water and soap or soap spirit, but sometimes spirit alone well rubbed in loosens the comedo best.

The local applications may be either of a more or less soothing character where the acne is acutely inflammatory, or more energetic where, as is usually the case, the eruption is very indolent. The chief drugs which are used are sulphur, salicylic acid, resorcin, and soap.

Sulphur may be used, where a soothing action is also desired, in the form advised by Duhring:

℞ Potassi sulphidi .. .. ʒi.
Zinci sulphatis .. .. ʒi.
Aq. rosæ .. .. ʒiv.

A double decomposition occurs in this lotion, and there is a strong smell of sulphuretted hydrogen given off when it is first prepared. It should be well shaken and dabbed on, and is, I think, a good deal superior to the ordinary calamine lotion to which sulphur has been added. If a slightly more vigorous application be required, one may either rub in an ointment containing 3 per cent. of sulphur and 2 per cent. of salicylic acid, or one may use a medicated soap. This last method is a favourite with me, since it is extremely cleanly and convenient, and at the same time very efficacious. The method of use may be either to rub in the lather of the soap for five or ten minutes, and then wash it off, or to leave it on all night and only wash it off in the morning with plain water. The former is better with all but the most indolent and greasy skins, and even with these it will be necessary to intermit the all-night treatment now and then. As regards the soaps to be used, I find two formulæ of especial value, the first being ichthyol and sulphur soap (5 per cent. of each), and the second a mercurial soap containing 5 per cent. of oleate. The former is indicated where the seborrhœa and comedo are

very marked, and the latter where, without very abundant comedo, there is a great tendency to suppuration. In more indolent cases still one may practise a method of exfoliating the whole surface of the horny layer, and probably the more superficial parts of the appendages. Even with this method also one may act in a more or less energetic fashion. The formula I use is:

℞ Sulphur. sublimat. .. .. .. ʒss.
Hydrarg. bisulph. rubr. .. .. gr. xx.
Sapon. mollis .. .. ʒii.
Adipis .. .. ad ʒi.

By many patients this ointment may be rubbed in at night and washed off in the morning for weeks, but some have to rest the face after four or five days. It causes a superficial chapping, with much redness of the skin, and it is probably the combination of the active hyperæmia with the exfoliation which is so beneficial. Some use instead the spirit soap solution alone (sapon. mollis ℥ii., sp. vini rect. ℥i.), well rubbed in, while others use Unna's formula:

℞ Resorcin. .. .. ʒv.
Zinci oxidi .. .. gr. lxxv.
Terræ silicæ .. .. gr. xv.
Adipis benzoat. .. .. ʒiiiss.

In severe nodose acne a good deal of surgical treatment may be required in the way of opening and evacuating the lesions. I think it is best to puncture only those lesions in which either fluctuation can be detected or a yellow point can be seen on gently pressing out the redness. I have seen several cases in which incision has only revealed a thick mass of granulation tissue without suppuration, and in such cases the scar of the incision is more disfiguring than the slight atrophy left after the spontaneous absorption of the inflammatory products. It is in these cases especially that the antistaphylococcic treatment of Wright is of the greatest benefit. When puncturing the lesions, I content myself with washing the surface with 2 per cent. lysol, in order to prevent the pus from infecting new follicles as it runs over the skin, as I am convinced that one cannot disinfect the interior of a septic cavity with antiseptics of any ordinary strength; and I cannot, therefore, agree with those who recommend the injection of antiseptics into

the lesions, a practice from which I have never seen benefit accrue.

Lastly may be mentioned X rays. In severe cases it is almost always possible to cause the disappearance of the eruption, generally permanently, by the use of X rays. I do not recommend their routine use, as there is some risk of ageing the skin, but undoubtedly the method acts very fundamentally by wasting down the enlarged and overactive sebaceous glands. Under its use the patulous follicles close up, the skin becomes drier, silky, and elastic, old lesions on being emptied do not recur, and fresh ones do not develop. About a third of a pastille dose once a week should be given until some change is seen to be beginning, but the method is not one that should be applied by any but experts.

Acne Varioliformis.—This name has been applied to two conditions—the disease which is here described, and molluscum contagiosum. Confusion is not, however, very likely to arise, as the name is now seldom, if ever, applied to the latter disease.

Acne varioliformis is generally reckoned a somewhat rare disease, but I believe very mild instances of it are not uncommon.

Symptoms.—Seborrhœa is always present, and the eruption occurs in those regions which are prone to excessive secretion—namely, the forehead, extending back into the hair and down on to the temples and cheeks, the front of the sternum, and the interscapular region. The earliest lesion is a small, shotty papule, upon which develops a minute and rather deeply seated vesicle. This vesicle dries up to form a brownish-yellow scab, which appears to be embedded in the skin. The process may continue so that the scab enlarges from the size of a pin's head to that of a threepenny piece in severe cases. After a few days the scab falls off, leaving a depression behind it, and the size of the depression depends on that of the original scab. If very small, permanent scarring may be hardly noticeable; but if the scab has been much larger than a pin's head, there is a permanent pit like a pock mark, and from this scar the name is derived. The disease is, in my experience, rather commoner in women than men, if one includes the mild cases; it attacks adults at an age at which common acne is rare, and is nearly always associated with severe itching.

The *etiology* is still rather obscure. Sabouraud insists that it is due to a subsequent infection of his "seborrhœic cocoon" —*i.e.*, the earliest stage of comedo—with the white pyogenic staphylococcus. Cultivation has invariably given in my hands the white or yellow staphylococcus, and the patients have shown a low opsonic index to *Staphylococcus pyogenes;* but I think there must be something behind this that has at present eluded detection. The fact that arsenic internally has at times a beneficial action suggests that there is some constitutional error, but this may, of course, be only the seborrhœic condition.

The disease has to be distinguished from one form of late acneiform syphilide of the scalp and forehead. The point of distinction is the development of the vesicle, which can always be found if sought.

Treatment.—As already stated, a course of arsenic is very beneficial in some cases. Locally, I find the dilute nitrate of mercury ointment clears the lesions away almost immediately, but unless persisted with for months relapse is certain to occur.

Acne Rosacea.—Under this name is included a rather complex group of affections.

Symptoms.—Many authors draw a very hard-and-fast line between acne rosacea and acne vulgaris, but although some forms of rosaceous disease appear to be quite distinct, others form an almost continuous series with severe common acne. The important point to realise is that there is a common basis of circulatory disturbance underlying the superficial lesions and determining their localisation on the nose, the centre of the forehead, the prominent parts of the cheeks, and the chin. These regions are invariably subject to attacks of flushing during some parts of the day, and the hyperæmia may become fixed, or may fade completely between the paroxysms of flushing. The lesions found on these damaged areas may be either nodules which go on to suppuration, or scaly papules, or a mixture of the two. With the former type seborrhœa and comedo are present, and the disease is evidently closely allied to acne vulgaris. The latter type is usually found on a dry and easily chapped skin in which comedo does not often occur.

As a result of the constant flushing and hyperæmia of the parts involved, the small vessels immediately beneath the epidermis become permanently dilated and varicose, and the epidermis over them atrophies, so that on the slightest violence they may bleed; and in cases where the atrophy is not sufficient to give rise to this symptom, the disfigurement is nevertheless very marked. In some severe cases the constant flushing and seborrhœa set up a condition of enormous hypertrophy of the sebaceous glands and the fibrous tissue between them. The condition is known as *rhinophyma* or *lipoma nasi*, but the latter term should be dropped, as the tumours are not formed of fat lobules. There seems to be no limit to the size of the growth, the cases varying from a mere thickening of the nose to the development of large, lobed tumours the size of a tangerine orange. The surface of such a tumour is deeply pitted with large sebaceous openings, and these are usually stuffed with soft comedones. The subjective symptoms of acne rosacea are an uncomfortable feeling of heat when the flushing occurs, combined with a tender, bruised sensation in the case of the suppurating nodose type, and soreness and itching in the scaly and papular form.

Etiology and Pathology.—It is open to question whether the mere exposure to cold winds and strong sun alone is enough to set up the condition, but it is certain that nearly all cases have an internal factor in addition, and also that local irritation has a decided effect. This internal factor is apparently always some disturbance of the alimentary canal and its appendages. The common belief that the disease is always the sign of chronic alcoholism is erroneous, and it is probable that alcohol owes its peculiar efficiency in causing acne rosacea to the fact that, when taken in excess, it damages the alimentary canal and causes dilatation of the cutaneous bloodvessels. Other articles of diet, either from error of quality or quantity, will also cause the same symptoms, and once an irritable condition of the stomach is established, almost any food will produce the flushing. It is easy to understand that the skin must suffer in nutrition from the repeated congestion, that excessive sebaceous secretion may result, and that the skin should fall a prey to the cocci of suppuration and to the organisms that cause the pityriasis, but it is not clear why some cases develop



RHINOPHYMA

the intense seborrhœa, while others remain of the dry and scaly type. In some cases occurring in women there is pelvic disease present, but I think there is always the dyspeptic trouble as well.

Treatment.—From what has been said above, it will be obvious at once that constitutional treatment is of great importance. The diet should be wholesome and simple, but it is well to be on one's guard against the maintenance of too rigid a system. One sees cases now and then which are on the verge of scurvy, owing to the abstention from meat and fresh vegetables, and the effort to live on cereals alone. To describe the internal treatment in detail would be to write a treatise on dyspepsia, and it is therefore only possible to allude to a few points. The food should not be bulky, and the meals are better kept rather small and rather frequent. The drinking of large quantities of fluid at mealtimes should be avoided, and it is my habit to recommend the sipping of a tumblerful of hot water half an hour before meals. The condition of the teeth should always be examined, both as regards their masticatory efficiency and the presence or absence of caries or septic gums, many patients who show a peculiar yellowish tint, combined with anæmia, improving without further treatment than the clearing of the mouth of old stumps and decayed teeth. As regards drug treatment, the well-known mistura alba, in 1 or 2 ounce doses on rising, is of great value, and is, in my experience, far more efficacious than any of the natural mineral waters, owing probably to the presence of the magnesia and peppermint. Ichthyol internally in 5 minim doses is recommended highly by many, and I have certainly seen great benefit from it; but it has been superseded with me by menthol, given in doses of 1 or 2 grains after each meal. Cyllin is another drug which I have given in a good many cases, and from its undoubted efficiency as an intestinal antiseptic I expected very good effects. It does not, however, control the irritability, and should be reserved for those cases which show definite signs of intestinal toxæmia.

In some cases there appears to be an almost purely neurotic condition of the stomach causing the flushing, while the patient remains in good general health and complains of no other symptoms, and in these I have had the best results from

½ drachm doses of syrup of codeia diluted with a wineglassful of water before meals.

Local treatment is also very important in rosacea, but is, perhaps, less so than constitutional. In the oily and suppurative cases a mercurial ointment is of great value, and I have obtained excellent results from a paste containing yellow oxide of mercury.

℞ Hydrarg. oxidi flavi. .. .. .. gr. xx.
Pulv. amyli
Pulv. zinci oxidi } .. .. .. āā ʒii.
Paraffini mollis .. .. ad ʒi.

When the pustulation has been subdued by this means, one may attack the seborrhœa with sulphur and salicylic acid ointment (10 grains of each to the ounce of lard), or if there remains a good deal of inflammatory reaction, an ichthyol or thigenol paste may be used. The latter drug has the advantage of being practically free from smell, and, although as dark in colour as ichthyol, it washes easily off the skin and out of linen.

℞ Thigenol. .. .. ʒi.
Pastæ zinci (Lassar) .. .. .. ad ʒi.

In the more scaly and papular form the scalp will be found almost invariably to be affected with heavy scurf, and a resorcin (2 to 5 per cent.) ointment well rubbed into both scalp and the face is often beneficial, while for the face soap should be forbidden. Some authorities believe that the face affection is always secondary to the scalp, but I think this is only true of the more scaly forms. Where the tendency to hot flushing is very severe, excellent results may be often obtained by the use of the potassium sulphide and zinc sulphate lotion mentioned under acne vulgaris.

Apart from the inflammatory symptoms, the dilated vessels may require special treatment, and this is best done by electrolysis; but it should be remembered that **no interference with the vessels should be undertaken until the active eruption is cured.** The reasons for this are, first, that relapse in other vessels is sure to occur; and, secondly, that many apparently permanently dilated vessels contract up again when the inflammatory trouble subsides.

The electrolysis should be done by inserting a fine needle

attached to the negative pole through the walls of the dilated vessels, and passing a current of ½ to 2 milliamperes for a few moments. A progressive blanching of the vessel takes place, and one can often see gas-bubbles rushing along the lumen of the vessel. On the cheeks the process is very easy, but on the nose one must be careful not to leave pits, as the skin is so inelastic that they are easily produced. By carefully studying the arrangement of the vessels, and planning the punctures to interfere with the circulation in the largest number of branches, much benefit may be produced from a comparatively small amount of work.

In the treatment of slight hypertrophy of the sebaceous glands, with thickening of the skin, scarification may be used. The patient should be preferably under an anæsthetic, and then with a simple or multiple knife the entire surface should be divided first by lines parallel to each other and almost a millimetre apart, and then another set should be made crossing these at an acute angle. Care must be taken not to injure the cartilage, or small nodes will result, but the incisions must be deep enough to cut almost through the skin. Rhinophyma needs surgical ablation, and the operation is simple in the extreme. By means of a razor or large scalpel the whole growth is removed, and the desired shape of nose sculptured out, as it were. The hæmorrhage is profuse, but is easily arrested by pressure. The hypertrophied glands extend so deeply that the bases are left after the ablation of the tumours, and the epithelium, on reaching the surface, returns to the squamous type from which it was developed, so that the raw surface becomes rapidly studded with islets of epidermis, and healing results, with a scar which is hardly visible.

CHAPTER X

DRUG ERUPTIONS—TRAUMATIC DERMATITIS

Drug Eruptions.

Almost every drug has at one time or another given rise to a skin eruption in a susceptible patient, and it is therefore impossible even to enumerate those concerned.

The eruption may be divided roughly into toxic erythemata and special forms.

The chief drugs concerned in the production of toxic erythema are belladonna, quinine, salicin, aromatic bodies, such as copaiba, cubebs, sandal-wood oil, turpentine and camphor, antipyrin and its congeners, phenacetin and antifebrin, sometimes potassium iodide, and the antitoxic sera. Occasionally slight vesiculation and an eczematoid reaction may occur, and it is a good rule to bear in mind the possibility of a drug eruption in all cases where there is an ill-defined erythemato-papular eruption scattered over the body and limbs symmetrically.

Special Eruptions.— Of these, perhaps the commonest are those due to the bromides and iodides, though the latter may, as has been already mentioned, produce an eruption of the erythema type. The special eruptions, however, are quite peculiar and pathognomonic. Two main types are to be noted: First, the occurrence of acneiform lesions indistinguishable from those of ordinary acne, and, indeed, particularly liable to occur as an exacerbation of common acne in those who were sufferers from the disease before taking the drug; secondly, the formation of large tuberous lesions with deep suppuration.

These eruptions usually appear scattered about the limbs, especially the legs, and on the face. The first lesion is a hard nodule, rather deeply seated and of about the size of a pea, of a bright red colour and with a shining surface. As the



TUBEROUS ERUPTION DUE TO THE INGESTION OF POTASSIUM BROMIDE



Vesico-Bullous Eruption Due to Ingestion of Potassium Iodide
(Note the Dusky Discoloration of the Hands)

lesion enlarges it becomes a thick, flat-topped elevation, and points of deep suppuration occur, shining through the surface as yellowish dots. These suppurating foci reach the surface, burst, and scab over, so that the whole eruption has the appearance of an ulcerating new formation, and, indeed, it has been mistaken for sarcoma. On cessation of the use of the drug the eruption may continue to appear for about a fortnight or three weeks, according to the time taken in excretion. The lesions then gradually subside and leave practically no scar. In addition to this, potassium iodide may cause an abundant eruption of bullæ on a deeply cyanotic base, chiefly affecting in this variety the hands and feet. I have recently learned by observation of a case in the wards that the iodide eruption may be accompanied at each outbreak, and before suppuration has occurred, by a sharp rise of temperature (103° F.), which subsides soon after the drug is withheld.

The determination of these eruptions is largely a question of dosage; the higher the dose, the more likely to occur and the severer the eruption. A poor excretory power of the kidney contributes to its production by increasing the amount present in the circulation. Cases have been reported in which the child has acquired the eruption through the milk of a mother taking bromide, and I have had one interesting case in which a bromide eruption appeared on a baby's face three days after birth, and without the secretion of milk on the part of the mother. In this case the mother had taken bromides during pregnancy up to the time of labour.

Arsenic is another drug causing special symptoms on the skin. This takes one of four forms: First, an acute erythematous and scaly condition of the eyelids and face, with an eczematoid eruption of the forearms and legs; secondly, the production of large, infiltrated, red, and scaly areas, not unlike lupus erythematosus, scattered about the face and extremities, in cases where the ingestion of the drug has been persisted in for rather longer; thirdly, pigmentation round the neck and extending from there all over the body and limbs, the pigmentation being dark in colour and showing little white areas about $\frac{1}{4}$ inch in diameter all over the affected part; fourthly, hyperkeratosis of the palms and soles. This begins with an erythema, and is followed by the formation of small wart-like prominences

around the orifices of the sweat glands, so that the whole surface looks as if bestrewn with small beads. These then enlarge and run together to form a generally horny thickening, but usually continue to show a mammillated surface. Epithelioma has been noted as a sequel to this last form.

Silver has in rare instances caused a blackening of the skin, either general from internal ingestion, or local where the drug has been persistently applied, as, for instance, in eye affections. The affection is very uncommon, and may be confused with hæmatochromia, but the history should render the diagnosis clear.

Traumatic Dermatitis.

It is to be remembered that traumatic dermatitis is the result of a reaction of the skin in response to the pernicious action of an external agent. The reaction varies greatly in different individuals with the same dose of the irritant, and this tendency to inflammation may be called the **susceptibility** of the skin. Putting aside for one moment those powerful corrosives—such as the caustic alkalies and the strong mineral acids, which cause immediate destruction of all skins, and have, therefore, very slight interest—one may study the variations of susceptibility displayed by different skins. Thus, in some patients a dose of a generally irritating substance may cause an inflammatory reaction, though too small to do so in most cases. Such patients are said to possess an undue susceptibility to the irritant in question, and if the susceptibility be only exhibited with regard to one irritant, it is said to be *special;* whereas, if it be present in response to all irritants, it is called *general.* A patient may show, for instance, a special susceptibility to carbolic acid, being irritated by short contact with a very dilute solution, while he may be able to stand fairly prolonged contact with a strong solution of washing soda as well as most normal individuals; or, on the other hand, he may have an extremely delicate skin which readily inflames after contact with dilute solution of carbolic, alkalies, mercurials, etc. Without making any very dogmatic statements, it may be said that patients showing a marked general susceptibility are apt to have very clear, fine, and fresh-coloured skins,

with a thin and delicate horny layer, not exhibiting a great tendency to the formation of grease.

In addition to this susceptibility to those substances which are general irritants, there is another and distinct form of reaction to bodies which are not irritants at all to most people, and this without any relation to the dose applied. Thus, in most people iodoform has no very marked irritating action, but there are many in whom a single crystal left in contact may produce a violent erythemato-bullous eruption. To this form the term **idiosyncrasy** is applied. With reference to this distinction, which is very useful in practice and quite reasonable, it must be understood that it is not absolute, as there are some bodies, such as the poisons of certain plants—*e.g.*, the Rhus toxicodendron, or poison ivy—which are to the majority of skins terrible irritants, but to which many are apparently quite immune even in the largest doses.

Susceptibility to irritants may be either congenital or acquired, permanent or temporary, while idiosyncrasy is probably always congenital and permanent to a greater or less degree. A close study of acquired susceptibility reveals much that is both interesting and useful. If we follow the history of a patient with an acquired susceptibility, we find something like the following usually occurs: On commencing to handle the irritant in question slight uneasiness or inflammation has been usually produced, but on continuance of the habit the skin has seemed to become inured to its use, and these slight signs have passed away. In consequence of prolonged and excessive exposure to the irritant, combined perhaps with a lowering of the general health, an acute inflammation is produced, and from this time forward the skin appears to have lost not only its acquired increased resistance, but also its original toleration of small doses. In such cases, although the inflammation quickly subsides after absolute cessation from exposure to the irritant, it recurs at once, and usually more severely, on even the shortest return to moderate doses. The case seems to be closely analogous to that of the heart in strain. As is well known, the heart can normally accommodate itself to a certain amount of work, and can be gently trained to stand strains that would be excessive at first. If, however, the strain at any moment be too great

for the normal or increased power developed by training, a state of acute dilatation occurs, from which recovery is only obtained after very long periods of rest. So the skin may have its resistance to irritants at first slightly increased, but this resistance, once broken down, is lost for very long periods, and it is impossible to say for how long.

Symptoms.—The symptoms of traumatic dermatitis may be divided into three classes: (1) Acute necrotic inflammations; (2) characteristic inflammatory alterations; (3) eczematous eruptions.

The nature of the third order is still a matter of dispute, being, according to some authorities, distinct from true eczema, which is not caused by any known irritant; while, according to others, the traumatic eruptions, which clinically resemble eczema of obscure etiology, do not in any material way differ from so-called true eczema, and should be classed with that disease. The latter view is one I hold most strongly, deeming it inconsistent to separate two eruptions precisely similar in clinical and microscopical characters merely on the ground that in one the source of irritation has been recognised, while in the other it has eluded detection. The third class will therefore be dealt with under the heading of eczema, and for this reason I have brought this disease into close relationship with traumatic dermatitis in general.

In the first class we have the effects produced by great heat, corrosive acids, alkalies, and salts. The chief characteristic common to all these is that, even in the case of dead skin taken from the cadaver, marked destruction is produced by these agents. In the living the alteration depends on the concentration and duration of contact of the destroying agent, and includes superficial destruction of the horny layer combined with inflammatory hyperæmia of the papillary layer, acute serous exudation with vesicle or bulla formation, and, lastly, total destruction of the epidermis, papillary body, and corium.

In the second class—that of characteristic inflammations—we have comparatively few causes. First may be mentioned cantharides, the effects of which are so well known as to render description hardly necessary. Since, however, it is extensively used as a means of producing feigned eruptions,

which will be dealt with in a separate paragraph, it is necessary to point out that cantharides in low strength, or employed for a very short time, causes simply a hyperæmia of the skin; in greater strength, and employed for a longer period, produces a tense, clear bulla rising from a pink or almost colourless base; and if used in low strength for a considerable period, by repeated application produces curious, thickened patches, partly œdematous and partly infiltrative.

Next may be mentioned tar and its derivatives. In this country the most marked dermatoses are usually produced by coal tar, as one does not often come across patients who continually handle tar from wood. The latter may, however, cause a marked folliculitis when used for therapeutic purposes. Derivatives of coal tar or substances containing them, such as ordinary soot, when applied to the skin for long periods, cause several kinds of lesions. These are: (1) A folliculitis of low intensity, and with a special tendency to horny hypertrophy at the mouth of the follicle, resulting in a minute epidermic horn and a hard, usually blackened comedo—"tar acne." (2) Apparently ordinary plane warts, and also, especially when hot tar derivatives splash on to the skin, red telangiectatic patches upon which warty thickening of the horny layer develops. (3) Apparently from the folliculitis, either by excessive overgrowth in one follicle or by the confluence of several, large warty tumours partly buried within the skin are formed, and these are known as "tar molluscum." If these are picked out, the bases often inflame and produce troublesome sores, but if left alone they usually shell out, leaving an ulcer which heals fairly quickly. (4) From these growths, and probably from the warty thickenings on the telangiectatic base already described, there may form growths entirely indistinguishable clinically and microscopically from squamous epithelioma—"tar cancer," "sweep's cancer." The favourite sites of these malignant transformations are the arms, face, and scrotum, probably because the first two are so much exposed, and the last is so delicate, and therefore reacts easily to small doses. I have said that these growths are indistinguishable from squamous epithelioma, and this is so, and in some cases metastasis and all the remote signs of malignancy take place; but it is worthy of note that in other

cases this growth, which is seen clinically as a verrucose tumour on an indurated base, spreading some distance beneath the surrounding skin, may slough spontaneously, leaving behind a crater-like ulcer which heals by itself and forms a completely healthy scar. Microscopical examination shows this form of growth to differ from ordinary squamous epithelioma only in the intensity of the reactive cellular infiltration around the epithelial downgrowths, irresistibly suggesting that the connective tissue is very actively combating the new growth, and possibly explaining the occasional necrosis and exfoliation of the tumour.

The *treatment* of tar dermatitis is chiefly prophylactic; those who work with the cold preparations should avoid contact, and wash off any deposited material as soon as possible, while those who have to deal with the boiling creosote oils should be protected as far as possible from splashes.

In the works of those by whose courtesy I was allowed to study the eruption these troubles were being rapidly stamped out by the provision of numerous and convenient washing appliances, and the enactment of stringent rules to prevent the men from being exposed to splashes of hot products.

Large mollusca and verrucose growths are probably always better removed at once, as it is not possible to say whether they will slough out or go on to the formation of epithelioma.

Among workers exposed to chlorine fumes (chiefly those engaged in nickel-plating) a peculiar folliculitis is produced, with the development of a comedo indistinguishable from that of ordinary acne, and hence the disease is named "chlorine acne." It occurs, however, in all situations, some of which, such as the forearms, are only very rarely attacked by ordinary acne. Recently it has been suggested that tar products are always present in the process, and are responsible for the "acne."

Some of the benzene derivatives used for photographic purposes produce a peculiar dermatitis unlike ordinary eczematous eruptions, and characterised by a peculiar cyanotic discoloration of the fingers, combined with swelling of the part and glossiness of the surface, thus possibly causing confusion with other diseases dependent on nervous changes, such as "glossy skin" and "erythromelalgia."

Lastly, we may consider the extraordinary effects of X rays upon the skin. A considerable exposure of the normal skin may be given without any marked after-effects; but if a certain limit be exceeded, a train of events is almost sure to follow. First may be mentioned a transient hyperæmia, occurring usually within a week of the exposure, followed in fifteen days by complete shedding of the hair on the part, accompanied or not by slight desquamation. Secondly, an exposure slightly more powerful than this will induce, usually about eight days later, an acute dusky hyperæmia, with much early pigmentation and vesiculation of the part and loss of the nails. In some cases where the disturbance has been comparatively mild this eruption will heal up in about a fortnight, and leave merely a persistent pigmentation behind. Still more powerful exposures will lead to a rebellious dermatitis, or even sloughing of the whole skin, and the formation of an ulcer which shows no tendency to heal even for months. Repeated slighter exposures lead to a chronic form of fissuring dermatitis, with a peculiar tendency to the formation of dilated vessels, and the damage to the nails, if they are exposed, may become permanent, alopecia also becoming persistent. Further, by suitable mild exposures, without ever producing an erythema, one may cause a slight glossy atrophy of the skin associated with total alopecia. Lastly, in the case of the fissuring dermatitis, some of the cracks may become verrucose and even epitheliomatous, several deaths from this complication having now been reported.

Treatment of X-Ray Dermatitis.—In the early erythematous and vesicular stage of X-ray dermatitis I find nothing so efficient as a 1 in 400 watery solution of picric acid applied as a constant wet dressing.

In the ulcerative stage excision of the damaged skin is indicated, since the ulcers have little tendency to heal, and break down again easily if healing has occurred. I think that the best plan is to map out the area of dulled tactile sensation before the patient is anæsthetised, and plan one's incisions to remove all skin included in the area of diminished tactile sensation.

Lastly, in the warty stage freezing with CO_2 snow is often successful in removing both the warts and the telangiectasis.

Feigned Eruptions.

In order to serve some ulterior motive, eruptions are not infrequently produced intentionally by patients themselves. The persons producing them belong to one of two classes. Either they are in full possession of their faculties and disfigure themselves for the purpose of escaping some undesirable duty, such as compulsory military service, or to obtain the comforts of hospital treatment (true malingerers); or they are in an hysterical condition bordering on insanity, and probably inflict the injury for the purpose of attracting sympathy or attention. This distinction is not of purely academic interest alone, because it seems probable that the hysterical class often possess a peculiar irritability or vulnerability of the skin, which enables them to call forth very strange eruptions by means which would prove inadequate in perfectly sound individuals.

The eruptions so produced are erythemata, bullæ, excoriations, ulcers, and scars. They often show a peculiar shape, and are more generally found on the left side and on parts within easy reach of the right hand. In many cases the eruption takes the form of red wheals with a central excoriation or small ulcer. Such are usually produced by rubbing the skin for a long time with the wetted finger, with or without the previous production of œdema by powerful suction. The other forms—bullæ and ulcers—are usually manufactured by the application of cantharides, turpentine, phenol, or strong mineral acids, more rarely by caustic alkalies.

It is not uncommon to obtain a history from the patient or relatives of the previous application by a doctor of a counter-irritant for a therapeutic effect, such application apparently suggesting the further use of the irritant to the morbid mind. In the investigations of these eruptions the following hints may be useful: A unilateral, patchy, and unevenly distributed eruption, which corresponds to no known dermatosis, but consists of bullæ on hyperæmic skin or irregular sloughs and ulcers, and occurs on the skin of an excitable female patient, should arouse suspicion, which must on no account be communicated to the patient. In all such cases litmus paper moistened with water should be applied to the surface, as it

is wonderful how long a pronounced acidity will last after the application of strong acids. Careful observation will also be used to detect any smell, such as that of phenol, mustard, or turpentine. The shape of the eruption—like a splash, or perhaps a circular patch with a tail to it, as if a drop of something had run down, or a markedly square or angular outline—is of help. Inquiry of the friends will elicit a history of furious outbursts of temper and incorrigible lying; but all such investigations must be made with the utmost tact, and it is a good plan to sympathise with the patient apparently in order to put her off her guard.

The careful sealing up of the part under glycerin gelatin dressing will allow of further observation on the course of the undisturbed lesion, and one may suggest that in such cases it is usual to see a patch come out on a certain place. Thus, with a patch on the left breast one may suggest before the patient that in this disease a small area will usually follow on the outer side of the right knee, and the prophecy will be generally speedily fulfilled.

Treatment lies, of course, in the hands of the nerve specialist or alienist, and such patients not infrequently end their days in a lunatic asylum.

CHAPTER XI

ECZEMA—DERMATITIS EXFOLIATIVA

Eczema.

The series of eruptions comprised under this heading undoubtedly form the most important chapter in the whole study of dermatology. At first a term applied to eruptions of external origin only, it was then extended to the group of symptoms which we now recognise as eczematous. At one time its etiology was considered to lie in some obscure disorder of the blood (French school); later the external causation was again brought forward almost exclusively (Vienna school); still later it was believed to be of parasitic origin, and a pathogenic organism was actually described by Unna; and now, perhaps, the tendency is to regard the disease as of manifold causation.

In discussing eczema we shall find it of service to recall what has been written above at the commencement of traumatic dermatitis concerning susceptibility and idiosyncrasy. Also we must bear in mind that the skin is ever open to attack by the ubiquitous pyogenic organisms, the effects of which have been already described in detail.

Eczema may be divided into acute and chronic forms, and even here there has been difference of opinion, some using the term acute as almost synonymous with severe, while others apply it to the mode of onset and duration of the eruption. This latter seems to me the only rational view, and it is in this sense that acute will be used here.

Acute Eczema.—The earliest symptom of acute eczema is a hyperæmic flush over some part or parts of the skin. The red patch so produced is of irregular outline, with indistinct margins, fading very gradually into the surrounding skin. On close examination it is found that there is slight and very superficial swelling of the part, though in some regions, such

as the eyelids and scrotum, where the connective tissue is extremely loose and the skin itself very thin, marked subcutaneous œdema, like that occurring with acute nephritis, may be noticed.

In a few hours there is to be observed a definite translucency of the surface, owing to the œdema of the deeper layers of the epidermis, and shortly after this minute papules the size of a pin's head rise upon the affected part. These papules rapidly gain in definition, and show an obvious collection of clear, yellowish fluid, thus becoming vesicles. The vesicles, where the horny layer is thin, burst and leave a red exuding surface; but where it is thick, as on the hands, the vesicles may enlarge and run together to form large bullæ, though even in this case partial septa remain, so that the bulla has a curious appearance as if studded with points. After the rupture of the vesicles the surface may remain red and acutely inflamed for a variable period, during which there is a free discharge of coagulable serum, and this stiffens any clothing with which it may come into contact.

As the inflammation abates there are formed gummy crusts, which adhere for a few days until they either fall off, leaving a delicate and ill-formed horny layer beneath, or are carried away by a new discharge of serum. If no fresh inflammation occurs, the part rapidly becomes paler, though still remaining pink, and is soon covered with fine papery scales, since the first-formed new horny layer is never sound. In a short time these papery scales fall off, and the surface returns apparently to the normal; but although there may be nothing at all to be seen, the skin has not regained its proper power of resisting injury, and the slightest indiscretion may precipitate another outbreak.

The constitutional symptoms of acute eczema are usually slight, the temperature seldom being raised beyond a degree, and the patient generally feeling much less ill than he looks. On the other hand, subjective symptoms in the skin itself are very marked, a maddening itching being the chief trouble, combined with burning and, of course, soreness when the horny layer is lost and the sensitive, deep epidermis exposed.

The length of time occupied by a typical attack of acute eczema varies a good deal, and it is by no means necessary

that all the stages above described be represented. Mild attacks may begin with a sudden spreading hyperæmia and some œdema, and may then resolve again, merely passing through a stage of branny desquamation to complete healing. Short attacks of this kind may last only a week or ten days, but a thoroughly developed outbreak, with vesiculation and weeping, seldom lasts less than three weeks, and, of course, the eruption may heal in one place and extend in another.

Some cases of acute eczema do not, however, entirely recover, but, while healing in most places, may change their character and become chronic in some particular region. Such situations are generally either those where the skin is most delicate or where it is most liable to injury. Thus, acute eczema of the face and head is particularly liable to leave chronic trouble at the angles of the mouth, at the eyelids, and at the back of the neck, owing to the constant movement of these parts; at the retro-auricular folds, owing to the extreme delicacy of the skin here and the liability to fissure with the slightest swelling; and at the orifice of the ear, owing to the liability of the secretions to decompose and become irritating. When attacking the genitals and anus, chronic trouble is apt to occur by the production of fissures at the inguinal fold, the root of the penis, and the anus; while on the hands the flexor surfaces of the wrists are most likely to remain affected.

Cheiropompholyx or Dysidrosis.—I place the eruption in this position immediately after acute eczema, because after a careful study of the cases described as dysidrosis by those who claim that the eruption is an entity I can see no well-defined point of distinction from acute eczema.

Symptoms.—The disease occurs in somewhat frequent outbreaks, especially in the first hot weather, of deep-seated vesicles on the palms of the hands and the soles of the feet, and between the fingers and toes—*i.e.*, where the horny layer is thickest. These deep-seated vesicles are said to be unaccompanied by redness and to resemble sago grains buried in the skin. This is undoubtedly true, but then these parts are not easily reddened until complete exfoliation of the thick horny layers has occurred. Secondly, the vesicles may run together to form large bullæ the size of a nut; but this, again, is owing to the anatomical peculiarity of the part, the horny

layer being so tough as to resist rupture, and consequently, with the confluence of the vesicles, a sufficient accumulation of serum forms to produce a bulla. A precisely analogous bulla formation is seen in impetigo contagiosa of the extremities, but we do not therefore argue that the eruption in these positions is a distinct disease from impetigo elsewhere. Lastly, although it is said by some never to extend above the wrists and ankles, it is agreed by many that the eruption may travel up the arms and may attack the face, so that, as I have already said, I fail to distinguish it from acute eczema, and, moreover, I have seen those who do so distinguish it fail to agree over the points of distinction.

In an earlier part of the book I have described the appearance of epidermophyton ringworm as it affects the toes and feet generally. It is necessary to mention this disease again here, since undoubtedly many cases of so-called relapsing dysidrosis are in reality cases of chronic infection with the epidermophyton fungus. In these cases the disease disappears almost entirely during cool weather and when the feet are kept dry, and returns in vesico-bullous form when, either from climatic changes or from the sweating due to exercise, the feet become damp. In fact it is, in my opinion, unjustifiable to make the diagnosis of acute vesicular eczema of the hands, and more especially the feet, without a careful microscopic examination to determine the presence or absence of micro-organisms.

Chronic Eczema.—The study of the chronic eruptions under this heading is, perhaps, one of the most difficult in all dermatology, largely because they have been insufficiently worked out from the point of view of clinical pathology. It will, perhaps, simplify the study of the eruptions included under this heading to divide them into three classes:

1. Simple chronic dermatitis.
2. Chronic pyogenic dermatitis.
3. Seborrhœic and sweat dermatitis.

1. Simple Chronic Dermatitis.

Symptoms.—The skin appears to be in a chronic state of mild inflammation, as if continually worried by the application of some irritant. The eruption may occur as isolated small

papules the size of pins' heads, or these may run together to form sheets, but in the latter case there are almost always outlying papules beyond the main patch. There is usually a certain amount of discoloration of the part, and this may be of a reddish, yellowish, or brownish tint, according to the amount of actual hyperæmia or staining from extravasation of blood. The surface is rough and scaly, and the scales are usually small, and, when removed, prove rather adherent and friable.

In places crusts, distinguishable by their greater transparency and thickness, are present, and their removal is followed by a certain amount of serous discharge. If occurring on any part supplied with hair follicles, these are always found congested, and beyond the main patch of the eruption there are almost invariably isolated inflamed follicles to be seen. When picked up, the skin feels slightly thickened and markedly inelastic, owing to the hypertrophy and improper development of the epidermis, and the œdema of the superficial part of the corium.

The loss of elasticity causes the production of cracks at any very movable situation, and in some cases marked fissuring may be observed, even where the movement of the skin is not great, such as the centre of the back of the hand. The causation of these will be more fully explained under the heading of anatomy. The circulation through the skin over a part affected by chronic eczema is badly controlled, and the part reddens on the slightest handling, on washing, or on alterations of temperature, and a kind of factitious urticarial reaction is produced with increase of the pre-existing œdema. Tactile sensation is not lost, but there is usually some alteration in it, probably owing to the irregular thickening of the epidermis. Subjective sensations are intense itching, usually at certain times, and caused by alterations in the circulation or the external temperature. Thus at night itching is often intense, and on dressing or undressing, going out into the cold, or coming into a hot room, it is greatly aggravated.

In certain positions the eruption may take on special characteristics. An axiom worth remembering is that, **where a disease occurs in a highly specialised part, the characteristics of the disease are obscured by the special characteristics of the**



FISSURING ECZEMA OF THE HANDS



CHRONIC SEPTIC (VARICOSE) ECZEMA OF THE LEG

part. Thus, on the palms and soles the normally very thick horny layer is apt to become greatly hypertrophied, so that all that is to be seen may be a very thick and fissured horny layer, with heavy desquamation (sometimes called *eczema rimosum*). The nails may be affected in two ways: the process extends either over the posterior nail fold into the matrix or from the free margin to the bed. In the former case the posterior fold becomes much swollen and fissured, tending to start away from the nail, and the nail plate itself becomes irregular, pitted, ribbed, and discoloured. In the latter case the nail plate becomes raised by the heavy thickening of the bed, and is often curved in the directions opposite to the normal—*i.e.*, it becomes concave from side to side and from matrix to free edge, thus resembling a spoon (spoon nail). The hair on a part affected with chronic eczema may fall out, or become broken and twisted from pressure of the hypertrophied horny material at the mouth of the follicle.

2. Chronic Pyogenic Dermatitis.

Both the staphylococcus and the streptococcus are concerned in the production of this, and although it is difficult to apportion to them their due share in its causation, there is no doubt that they are largely responsible for certain forms of eruption. The staphylococcus, which seems to be the less important, rather keeps up a pre-existing dermatitis than causes a special form. All chronic discharging eczema becomes infected, and it depends apparently on the resistance of the skin as to whether this infection be overcome or not.

Symptoms.—The chief signs of chronic staphylococcic or mixed septic dermatitis are a marked dusky red colour due to chronic hyperæmia; a moderately intense œdema of the epidermis, shown by thickening and discharge of sero-pus; the occurrence of minute pustules scattered over the red surface; and the formation of thin, papery scales, usually of large size, and of crusts from the drying of sero-pus. The greatest intensity is usually at the edge of the eruption.

This form is chiefly found on the scalp, at the nape of the neck, and on the lower extremities, especially where varix or other impediment to the circulation is present; it forms the ordinary so-called varicose eczema, and is the forerunner of varicose ulcer. The streptococcic form is much more interest-

ing. It appears as a slight fissure associated either with a little furfuraceous scaling or with a definite pink and shining œdema of the epidermis, and it almost always attacks folds or orifices. Thus, it is common behind the ears, at the angles of the eyes, of the nose, and of the mouth (in the last situation it is the *perlêche* of French authors), at the root of the penis, the fold of the groin, or the anus. It is extremely obstinate to treatment, and it so thoroughly disorganises the resistance of the part that relapse is very common after cure.

It therefore usually remains undisturbed, and then, on some added damage to the skin from external irritation or internal derangement, an acute eczema comes flashing out around it and spreads widely to the neighbouring parts. Thus, from hardly noticeable fissures behind the ears the whole scalp may be involved in a few days in an acute weeping eczema.

A short notice may be given to a curious eruption usually seen on the face, and almost restricted to children. This disease has been called seborrhœa sicca, epidemic dermatitis of children, and seborrhœic eczema (it is the *dartre volante* of French authors). It appears as little rough patches about the face, these patches being nearly round as a rule, and varying in diameter from $\frac{1}{4}$ inch to 1 inch. The colour is a light yellowish-pink, and does not differ very greatly from that of the healthy skin, but the surface is fissured in fine striæ, giving a crêpe-like appearance to the patch. Although only slightly redder than normal, the patches become bright red on the slightest rubbing or washing. The scales are fine and very adherent, and very slight hæmorrhage, without visible serous discharge, occurs on their removal. The eruption is most often found distributed below the level of the alæ nasi, though patches on the cheeks and forehead do occur, and it has a special tendency to wrap round the mouth and to descend from the angles to the sides of the chin.

Apparently it sometimes becomes generalised, and then appears as round or oval patches of scaly folliculitis, generally on the extensor surfaces of the limbs, but it seldom affects the scalp. For the purpose of labelling this eruption conveniently while studying its etiology I have termed it *discoid eczema*, as I have never seen the centre resolve to form rings, and the main shape of the patches is round. Sabouraud, with

whom after a whole year's study I am in disagreement, calls the disease impetigo sicca, and says it is a variety of impetigo contagiosa, and that in such cases one finds also present a streptococcic fissure, such as those above described under chronic streptococcic dermatitis. The frequent presence of a fissure at the angle of the nose or mouth is admitted by me, but I see in it a different explanation. From long observation I have convinced myself that the disease occurs chiefly in those who have chronic nasal catarrh, or who are mouth breathers and wet their pillows at night. Another frequent cause of this eruption is the use of unsuitable soap, as first pointed out to me by Dr. Adamson. Soaps which may be excellent for scrubbing and the cleaning of fabrics, such as "Sunlight" and "Lifebuoy," are quite unsuitable for use on the delicate skins of children, and, in the absence of the mouth breathing and slobbering at night alluded to above, it is almost the rule to find that one of these soaps or some carbolic soap has been used for washing the face.

Those who believe in the epidemic nature of the eruption also believe in its rapid cure. Here, again, I join issue, finding that the covering of the part with a little ointment obscures the scaling, and so renders the eruption almost invisible, but nevertheless fails to cure it in reality, and this is in striking contradistinction to ordinary contagious impetigo.

3. Seborrhœic and Sweat Dermatitis (Seborrhœides).

There is in reality considerable doubt as to the propriety of the names in these forms, but they are now so well established that it is easier to keep to them until further research has completely elucidated their nature.

Symptoms.—Clinically they may appear as an ordinary acute eczema, but in this case before the outbreak there has already been a pathological condition present, and a careful search will generally show part of this pre-existent morbid state still persisting.

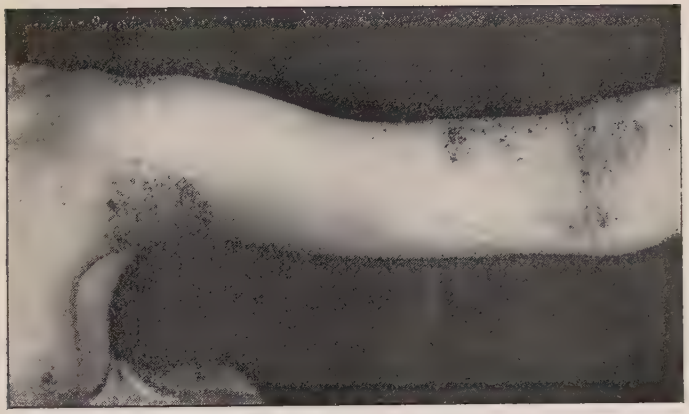
The scalp, which is one of the most common sites, shows a scurfy condition (pityriasis alba, *q.v.*), associated with redness, swelling, and discharge of a moderately severe character. On the face there is usually a scurfy condition, with minute follicular papules, vesicles, and crusts, usually more or less grouped into patches. The eyebrows are scurfy and crusted,

and the beard region in adult males similarly affected. The trunk shows an eruption whose chief sites of predilection are the front of the chest, over the sternum, the skin around the nipples, the shoulders, and the interscapular groove, so that the back is affected over a triangular space with the apex of the triangle downwards, and a band round the lumbar region. The extremities are often affected, but the palms and soles usually escape until late in the generalisation.

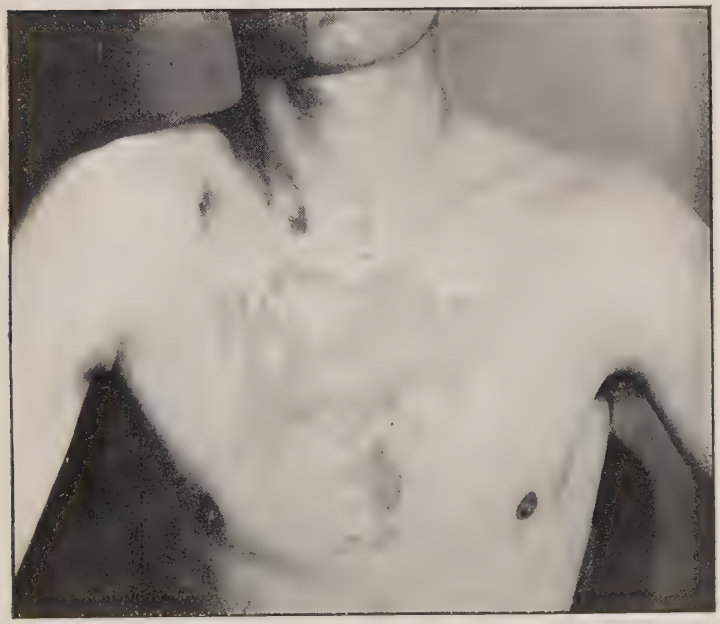
The type of affection is a subacute inflammation of the follicle. This may be either in the form of a perfectly dry, scaly form of folliculitis, or, if more severe, a red acuminate papule with an abortive vesicle on the summit. These papules commence discretely, and may remain isolated though generalised, but more often they become grouped.

The grouping is commonly effected by the formation of rings (hence the old name lichen circumscriptus or circinatus), which are formed by the springing up of new papules around the original one, so that, as this heals, the process extends centrifugally, but **the original papules never enlarge to form the rings.** A certain amount of pigmentation is left after the healing of the central papules, so that there develops a central yellowish stain, surrounded by a ring of follicular papulo-vesicles, covered with scales and crusts, and of a lively red. Healing often takes place at one part of the margin, so that incomplete circles and gyrate figures are formed. Lastly, the irritation of the process may determine a generalised acute or chronic eczema, which is clinically indistinguishable from ordinary acute eczema or chronic simple dermatitis, in which case any part or the whole of the cutaneous surface may be affected.

A type which I am in the habit of labelling flexural eczema seems to differ slightly from this. It is found, as the name implies, chiefly in the axillæ and groins, and the bends of the elbows and knees, and is generally associated with hyperidrosis. It appears as large, well-defined patches, usually of a brownish-red colour, very œdematous and much thickened, showing scarcely any of the typical eczematous papules. It is probably identical in nature with eczema intertrigo, but is extremely resistant to treatment, and clinically closely resembles the chronic streptococcic dermatitis described above.



Flexural Type of Eczema Affecting the Elbow and Axilla



Figurate Seborrhœic Eczema

Etiology.—Eczema appears to be an inflammation of the skin caused by an unusual susceptibility, congenital or acquired, to the action of external irritants.

By this definition it is not meant to depreciate the importance of internal factors, but to register my opinion that some degree of external factor invariably assists.

Slight congenital abnormalities of the skin are not uncommonly found underlying frequent attacks. These abnormalities are commonly ichthyosis, or that mildest grade of it which is known as xerodermia, and it is easy to see how the dry and inelastic skin must fall an easy prey to the common irritating factors of damp and cold winds. The opposite extreme, the hyperidrotic skin, whether congenital or acquired, is also a strong predisposing cause, probably from the liability of the excessive secretion to decompose, with the formation of irritating substances.

All parts of the skin below the hips are much more commonly and severely affected than those above, owing to the adverse conditions of the circulation, and if, added to this, varix develops, and so aggravates the condition, the development of eczema becomes almost the rule.

Of the external agencies, almost every slight strain to which the skin is habitually subjected may be efficient. For example, exposure to strong sun or the arc lamp in some trades; to cold winds, especially when combined with wet; irritating dusts, either from their dissolving in the sweat to form noxious solutions or from their harsh grittiness; all kinds of chemicals, including soap and soda, irritating hair lotions and dyes, and strong antiseptics, especially in dentifrices; irritating discharges from mucous surfaces, decomposing secretions, such as the sweat in confined parts, and altered secretions, such as urine containing sugar.

Eczema affecting the hands and face should always suggest an external agent, and the plant eruptions must be constantly borne in mind. More especially is this the case when the patient states that the face has been affected so severely that "the eyes have been closed." Eczema around the mouth should call forth inquiry into the kind of dentifrice or mouth wash. Eczema at the back of the knees is not uncommonly seen in boys who wear short, loose knickerbockers. In walking,

if the knickerbockers are not properly cut, they strike the delicate skin at the back of the knee at each step. I have observed frequently among children who are not known to have any skin trouble that the backs of the knees are somewhat reddened at the end of the day, and in delicate skins this irritation will set up eczema in winter.

Of the internal causes of eczema it may be said that almost any form of ill-health may be found associated with the disease, but some are sufficiently definite to require special discussion.

Heredity plays a rather important part in the production of a predisposition to eczema. Apart also from the actual presence of eczema in the family, certain other diseases are often associated. The chief of these is asthma, and I do not deem it advisable to enter into the vexed question of the relationship of asthma to gout, but content myself with stating that asthma in the parents may result in eczema in the child, and this may or may not be associated with asthma in the child at a later period.

Asthma, apart from heredity, bears a very important relationship to eczema. It is not uncommon to find patients whose life from youth to middle age appears to consist of alternating attacks of these two diseases. When the asthma is better the eczema is worse, and *vice versa*, until later on the two appear at the same time, and the latter years of the patient's life are continual misery. I believe that this combination presents almost the only form of eczema which appears to be quite incurable. Of recent years there has, I think, been a growing tendency to regard many cases of asthma as inveterate chronic infections beginning in infancy.

I am suspicious that many of the cases of asthma and eczema are of this nature, and that the eczema is secondary to bacterial intoxication or infection. It is especially in the cases of "flexural" eczema that I have noticed this relationship, and I may instance the case of a child aged three years who suffered from eczema of the flexural type and also from a spasmodic cough.

The history was volunteered by her intelligent nurse that each relapse of the eczema was heralded by about a week of snoring at night. On examination it was found that the tonsils

were enlarged and septic, and nearly met in the middle line. These were enucleated, and a large pad of adenoids removed. The eczema improved very rapidly, no severe relapses ever occurring after the operation, and a year and a half later the skin was almost well and the spasmodic cough nearly, but not quite, gone. This child came from a family in which both asthma and eczema were constantly occurring.

Gout.—This disease is, at all events, more closely associated with eczema in the minds of the general profession and the public than any other. It is an undoubted fact that sufferers from classical gout are more prone to eczema than others, but more especially is it true that those indefinite troubles which are grouped under the heading of irregular gout are associated with eczematous inflammations. There is one form of dermatitis which I mention here, although it hardly conforms to the clinical description of eczema.

This form affects, in my experience, the hands or feet, generally beginning in one finger or toe, and not infrequently remaining confined to it. The early lesion appears to be a flat red patch, usually circular in shape. This soon develops an indolent scaling and increases in size. It then spreads so as to envelop the whole finger or toe, almost invariably involving the posterior fold and matrix of the nail. The nail plate then becomes yellow, thickened, and distorted, and is not infrequently shed. The skin of the affected part becomes swollen, red, and delicately wrinkled when the large, thin scales are removed, and there is usually slight serous discharge; the edge remains almost always defined, though a few outlying lesions may occur.

After repeated and fruitless examinations for special microorganisms I have become suspicious that there is a neuritic basis for this disease which strongly resembles, if it is not identical with, that described by the late Dr. Radcliffe-Crocker under the heading of **dermatitis repens**. It is extremely resistant to treatment, but I have seen some cases yield to colchicum internally.

Renal Disease.—This is, according to many writers, a prolific source of eczema, but I am in agreement with those who find that gross changes, such as albuminuria, diminished urea excretion, or excess of uric acid, are not particularly

common in eczematous patients. On the other hand, from some investigations which I have carried out I am inclined to believe that the efficiency of the kidney in many cases, as determined by its capacity to excrete salt, is low, and this would explain the strong prejudice against a highly salted diet which is widespread among patients. Glycosuria is not an internal cause of eczema, but merely a source of local irritation.

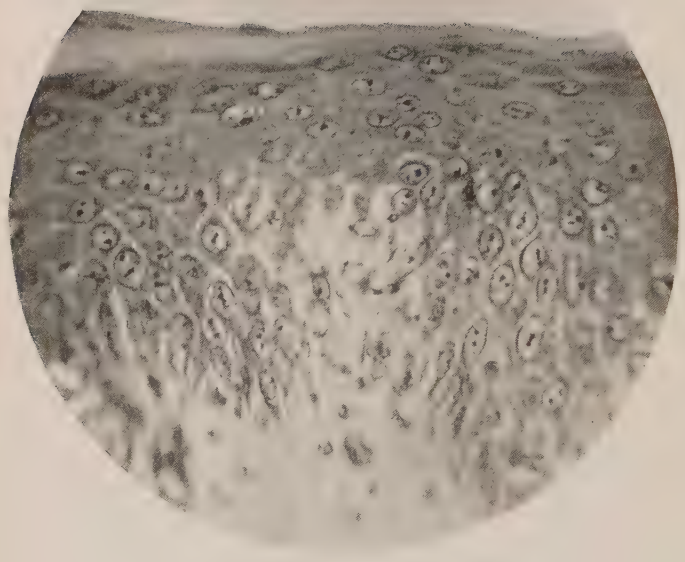
Dyspepsia acts probably in two ways: first, by causing a disturbance of the vasomotor system, with repeated flushing, especially of the face; secondly, by producing a definite malnutrition of the skin in those cases where poisonous products are absorbed from the alimentary tract.

Anæmia does not seem to me to be a cause of eczematous troubles, but rather tends to give them a peculiarly indolent and sluggish character if called forth by anything else, and to diminish the tendency to recovery.

Nervous Conditions.—Although organic nervous disease is not particularly related to eczema, there is no doubt in the minds of most dermatologists that severe nervous strain, nervous debility, and such conditions are great predisposing causes. A patient of mine always suffered from acute eczema of the hands when her sons were competing in examinations, and no treatment was of any avail until the published results allayed the excitement. When we consider the effect of nervous excitement on the circulation, sweat function, and digestion, it is easy to conceive a profound disturbance of the nutrition of the skin produced by one or all of these means.

Remote sepsis or focal infection I have already alluded to as the probable cause of the "flexural" type.

Pathology and Anatomy.—From the pathological standpoint the eczema may be divided into two classes—namely, the simple and infected. In acute eczema the skin seems to be reacting in response to severe irritation, though the irritant itself may be one of slight intensity to most people, and the inflammation may be almost entirely due to the heightened sensibility of the skin. In this form the ordinary signs of acute inflammation are present—namely, increased vascularity, exudation of plasma, cellular proliferation, and loss of function. The papillary body shows greatly dilated capillaries, marked œdema, and some increase of cellularity, but leucocytic exuda-



Acute Eczema showing the Commencement of the Vesicle
X 1000

tion is not marked. The epidermis shows distension of the intercellular lymph channels, proceeding to rupture of the prickles and the collection of serum, at first over the heads of the papillæ, but eventually extending until it reaches the horny layer, which it lifts to form a vesicle. Some of the epithelial cells become swollen from imbibition of the plasma, and the condition thus produced is known as **spongiosis**. At the same time there occurs excessive proliferation of the prickle cells, not confined, as is normally the case, to the basal layer, and this has been named **acanthosis**. The granular layer is altered and often lost, the living prickle cells, instead of passing through a granular stage to complete fatty metamorphosis of their protoplasm and nucleus with the development of a keratin envelope, merely develop this keratin outside wall, while retaining a moist protoplasmic contents and nucleus (**parakeratosis**). The results of these changes are, first, the redness and translucent swelling; secondly, the formation of papules and vesicles; thirdly, loss of the horny layer and exudation of plasma; and, lastly, scaling. The cells undergoing, as has been stated, an abnormal process of development arrive at the surface partially keratinised, but with protoplasmic contents. Owing to the evaporation of the water from the protoplasm the cells shrink and become distorted, thus tearing away from one another, and in this way also are formed the deep fissures sometimes seen.

Up to the time of the rupture of the vesicle acute eczema appears to be an aseptic lesion, but immediately the horny layer is lost the ubiquitous pyogenic microbe reaches the serum, and from this time onward the leucocytic emigration becomes marked. Even in this case infection to any great extent is uncommon, probably owing to the abundant flow of fresh antibacterial serum. If scabs form and any amount of serum stagnates beneath them, there is produced immediately a breeding-ground for cocci.

In chronic eczema there are added to the above changes more marked structural alterations. Acanthosis or epithelial proliferation is much greater, and the papule, which in acute eczema is mostly congestive and œdematous, becomes largely due to actual epithelial hypertrophy, though it is always associated with œdema. The height of the papillæ and the

depth of the interpapillary epithelial processes become increased, and the heads of the papillæ are often swollen. Some slight new formation of fibrous tissue in the true skin occurs, and there are always around the bloodvessels sheaths of newly formed adventitial cells, the removal of which is a matter of difficulty, and renders chronic eczema so obstinate and so liable to relapse.

Diagnosis.—Acute eczema occurring over a limited area has to be distinguished from erysipelas or other acute infective dermatitis. The points of distinction are, first, the absence in eczema of marked constitutional disturbance and fever; secondly, the ill-defined border of the patch or patches, the soft consistency of the swelling, and the peculiar bluish translucency of the œdematous epidermis; thirdly, the tendency of eczema to flash out over large areas at once, rather than to spread in a creeping manner from a single spot.

Occasionally, acute eczema appearing in very vesicular form and symmetrically distributed may simulate a vesicating erythema. The vesicles of eczema are more superficial and thinner walled, they do not enlarge, except where the horny layer is thick, and there is a tendency for the rings to be formed by the circular arrangement of papules rather than by an eccentrically progressive line of hyperæmic swelling.

The acute outbreak of vesicles and papules all over the trunk and limbs should invariably suggest the presence of scabies, and a search should be made for the burrow. Moderately acute eczema intertrigo, especially with a defined border, necessitates the search for ringworm fungus.

Papular eczema may be confused with lichen planus, especially when it is a subacute form subsiding, or a localised chronic patch. In this connection it is well to remember that **all papules which are undergoing resolution may simulate lichen.** The chief points of distinction are, first, the shape of the papules, round in eczema, and usually angular in lichen; secondly, the consistency, which is usually much firmer in lichen; thirdly, an examination of the shining top will show that in eczema it is due to the glazing by dried serum, while in lichen it is merely the stretching and tension of the epidermis; lastly, the milky striæ of the lichen papule (see under Lichen planus) are absent in eczema.

From psoriasis the diagnosis of some of the seborrhœic forms by the naked eye only may be very difficult. Owing to this, some observers maintain that they are mere differences in type of the same disease. The points of distinction are, first, that in seborrhœic eczema the ring is formed by the grouping of small papules, while in psoriasis it is often formed by the centrifugal enlargement of a single papule with central resolution; secondly, the scales in eczema are friable and cannot be removed in a coherent sheet, as is the case in psoriasis; thirdly, the base beneath the scales is apt to show slight exudation of serum in eczema, while that in psoriasis is polished and shows minute capillary hæmorrhages from single papillæ; lastly, microscopic examination of the scales shows in seborrhœic eczema the invariable presence of bottle bacilli, usually associated with cocci and micro-bacilli, while in psoriasis no organism is to be detected microscopically.

Treatment.—The successful treatment of eczema is, beyond that of all other diseases, the result of a good grasp of dermatological principles and the careful investigation of the particular case. When presented with a case of eczema, the first thing to do is to discover how much is due to external and how much to internal influence. As has been already stated, there are many cases of eczema, or, as some would prefer to call them, traumatic dermatitis resembling eczema, in which the external factor so far predominates that the internal is a negligible quantity. In others the nutrition and nervous stability of the skin is so damaged by toxæmia or nervous strain that it reacts with inflammation to influences which in the ordinary way are harmless. At the same time the external influence can never become a negligible quantity, and hence the often marked success of purely local treatment in cases with a strong internal etiology. Nevertheless, such success is usually of only temporary nature, and it is therefore all-important to elucidate the real underlying condition.

Having, therefore, inquired into every possible external cause, such as the occupation and hobbies of the patient, his tendency to local suppurative infections, and even the condition of the hygiene of his dwelling, it may be expected that one may get an approximate idea of the value of the external factor. As an instance I may give the history of a patient

whose attacks of acute eczema were always secondary to boils or styes. Careful overhauling of his drains both at home and at his office revealed no cause, but it was accidentally discovered that a disused cesspool lay beneath his office floor, and then for the first time he was secured from further attacks.

Besides such external influences, the state of the skin itself is to be examined, and abnormalities, such as the presence of ichthyosis, xerodermia, or hyperidrosis, and local conditions affecting the nutrition of the skin, such as varix, œdema of the extremities, or even flat-foot, which by causing hyperidrosis may determine the outbreak, should be noted. All these are comparatively simple points, and quite capable of elucidation, if sufficient time and care be devoted to them. Next, the morbid condition of the skin may be examined with especial reference to the extent of secondary pyogenic infection, the excitability of the vascular reflex, including any urticarial tendency, and the amount of superficial œdema.

Since in almost all cases of eczema local treatment is more important and efficacious than constitutional as a means of removing the eruption, it will be dealt with first.

In acute congestive conditions with unbroken surface the chief local action desirable is that of cooling. This may be attained by lotions or powders, or a combination of the two. Lead lotion is probably still the best application if sufficiently frequently applied, but this must be done in such a manner as to keep the part constantly wet without unnecessary thickness of covering. A single layer of lint may be used, and frequently dipped afresh into the lotion; or the lotion may be dropped upon the lint without removing it by means of a wick dipping into a basin of the lotion which is kept at a higher level than the part treated, so that a constant siphonage occurs. A good formula for the lead lotion is:

℞ Liq. plumbi subacetatis .. .. ℥iss.
Spiritus vini rectificati .. .. .. ℥i.
Aq. destillatæ .. .. ad ℥viii.

Other favourite lotions are ichthyol in 3 per cent. strength, picric acid $\frac{1}{10}$ to $\frac{1}{2}$ per cent., or some form of calamine lotion. This last partakes of the nature of a powder as well, since after the water has evaporated a powder remains. It should be frequently mopped on without the intervention of lint.

℞ Calaminæ præp. .. .. ʒiii.
Pulv. zinci oxidi .. .. .. ʒii.
Glycerini .. .. ʒiss.
Spiritus vini rectificati .. .. .. ʒiss.
Aq. destillatæ .. .. ad ʒviii.

Of powders there are numerous formulæ, and while the skin is unbroken the constitution is not very important—*e.g.* :

℞ Pulv. acid. boric. } .. .. .. āā part. æq.
Pulv. amyli }

℞ Pulv. magnesii carb. levis .. .. ʒii.
Pulv. talcis venet. .. .. .. ad ʒi.

When vesiculation or discharge has taken place, it is best at first, while discharge is very abundant, to continue with lotions, and all the formulæ above given are sufficiently antiseptic to prevent infection. In this stage a lotion secures, first, free drainage, and the prevention of dry scab formation; secondly, a slight constringent action on the vessels; and, thirdly, a sedative action on the excitable nerve-endings. Should the case, when first seen, be already very septic, it is best to apply a mercurial, provided, of course, that no susceptibility to mercury be involved. Simple lotio nigra, or equal parts of this and lime water, is often a useful and non-irritating application. In cases where the discharge is less severe or is drying up, one may apply some greasy protective application. Lassar's paste is one of the very best.

℞ Acid. salicyl. .. .. gr. x.
Pulv. zinci oxidi } .. .. .. āā ʒii.
Pulv. amyli }
Paraffini mollis .. .. ad ʒi.

This application should be spread on about $\frac{1}{8}$ inch in thickness. The presence of the powder acts in two ways: first, by giving "body" to the application it keeps a thick protective layer in place; secondly, by giving a certain degree of porosity it allows some amount of discharge to be soaked up.

Another excellent base to be used as a soothing and protective agent is zinc cream.

℞ Ol. olivarum v. amygdal. dulc. .. ʒss.
Adipis lanæ anhydros. .. .. .. ʒi.
Pulv. zinci oxidi .. .. .. ʒss.
Aq. calcis .. .. ʒiii.

This may be spread on fairly thickly and powdered over, when it forms a slightly greasy and protective enamel. It is especially useful in intertriginous cases affecting the groin and scrotum. Where itching is very marked, as is often the case, 1 per cent. of menthol may be added by dissolving it in the oil, or if there is much pustulation 4 per cent. of calomel may be incorporated with the powdered zinc. Ichthyol (4 per cent.) may also be added, or very weak ($\frac{1}{2}$ per cent.) carbolic acid or liq. picis carbonis, but these coal-tar compounds should be reserved for the less actively inflammatory cases, as they are not well borne by the others. Most cases of discharging eczema require no further local treatment, but in some an indolent discharge persists and needs special treatment. The following has proved of special service in my hands for the chronic discharging eczema of the lower extremities: First paint the surface with a solution of silver nitrate in a strength of from 2 to 10 per cent. in distilled water containing 25 per cent. of alcohol, then keep constantly bathed with calamine lotion. Every day the nitrate of silver solution is again painted on, and during the whole of the interval the skin should be kept constantly under the calamine lotion. Another drug which is occasionally useful is lenigallol, a triacetate of pyrogallol, which may be added in a strength of from 5 to 10 per cent. to Lassar's paste. It breaks up slowly on the skin, and gives a gentle but persistent cauterisation with blackening of the discharging points.

In chronic scaly eczema, especially when occurring on the palms and soles, or when associated with fissuring, tar is the sovereign remedy. Either wood tar (pix liquida, ol. cadini, ol. betulæ, or ol. fagi) or coal tar (pix carbonis) may be used. Tar is always a risky remedy in eczema, and should therefore be used in low strengths at first. One per cent. of the wood tar may be added to the zinc cream, or about 3 per cent. of the liq. picis carbonis. If no untoward irritation result, the strength may be gradually increased until the desired effect is produced.

Where great thickening and epidermic hypertrophy is present salicylic acid is useful. It should be used in a strength of from 3 to 20 per cent. when it is required to remove horny thickening, and may be incorporated with the soap plaster

of the pharmacopœia by melting together and spreading on strips of thick linen, though this is a disagreeable and dirty remedy. Excellent plasters containing salicylic acid are now made by many manufacturing chemists.

In finely fissured and desquamating eczema mercurial ointments may be used, such as the ung. hydrargyri nitratis diluted 1 in 8 up to full strength, as these forms are always more or less septic. Lastly, Unna's zinc gelatin may be painted on, and when nearly dry dabbed with cotton-wool.

℞ Gelatin .. .. 30 parts.
Zinci oxidi .. .. 30 ,,
Glycerin .. .. 50 ,,
Aquæ .. .. 90 ,,
Melt together and add ichthyol, 6 parts.

The seborrhœic forms do best under tar, mercury, or sulphur. In cases where there is a widespread seborrhœic folliculitis calamine lotion with the addition of 2 per cent. of sulphur may be used, or, if preferred, 2 per cent. of liq. picis carbonis may be substituted. In more figurate and scaly forms sulphur and salicylic acid or resorcin (2 per cent.) in an ointment are better.

℞ Sulphur præcip. .. .. gr. xv.
Acid. salicyl. .. .. gr. x.
Ung. aq. rosæ .. .. ad ʒi.

Finally, there is the peculiar follicular hyperkeratosis with general overgrowth of the epidermis and "lichenification" of the skin, which occurs chiefly on the leg, and which the French authors call lichen simplex (one form only, the other is probably lichen planus). For this the strongest measures must be used, such as systematic treatment with the X rays, the official chrysarobin ointment, or pyrogallol. A most convenient and efficacious method of applying the last-named drug is in the form of the mono-acetate of pyrogallol, sold under the name of eugallol. It is a dark brown liquid, containing $33\frac{1}{3}$ per cent. of acetone, and is extremely powerful. It should be painted on about once in four days and allowed to dry, when it will be found that it blackens the follicular points and reduces the thickened skin to a silky and elastic texture. Should this application prove too irritating and excite a subacute inflammation, Lassar's paste applied for a day or two

will usually bring the acute process to an end, and it will be found that the inflammatory reaction has hastened the disappearance of the chronic infiltration.

Two further modern treatments of eczema must be mentioned. First, there is the coal-tar treatment introduced by Dinde. This is only suitable for the non-infective forms of eczema, and even in these requires mature experience before one is safe in using it. When successful, it is almost dramatic in its effect.

The acute, discharging, and inflamed area is carefully cleansed, if necessary, with soap and water, which will cause temporarily still further inflammation.

The area is then painted either with neat coal tar (not liquor picis carbonis) which has been first washed in water to remove irritating ammoniacal compounds, or the coal tar may be incorporated with the pigmentum caseini B.P.C. (℥i. ad ℥i.). This is then allowed to dry, a process which will take an hour or more in the case of the neat tar, or about twenty minutes if it is incorporated with the casein varnish. There will be first a burning sensation which lasts about ten minutes, and then a sensation of comfort.

Next day much of the dried coating will crack off, leaving a fine, pink, and dry epidermis beneath. No attempt should be made to remove any adherent pieces, but the whole should be repainted once a day for five days only.

Further treatment, if necessary, should be for a week with Lassar's paste, and after the lapse of this time a further five days' treatment with the tar may be given, but never more than this at a time.

By this alternating method even severe weeping eczema may be reduced and will disappear, leaving a fine, pliable, and apparently normal surface.

If after the first twenty-four hours swelling or discomfort is observed, this is a sign that the case is unsuitable for the method.

In no case must this method be used in pyogenic dermatitis, as the results are disastrous.

Secondly, there is the method of treatment by means of X rays. After careful observation I believe that this is most effective in cases where the disease is almost purely due to a

heightened excitability. About one-third of a pastille dose is given once in ten days for two or three applications, and where successful will cause the whole of the symptoms to disappear.

The treatment is also useful to some extent for removing the thickening in old indolent cases, and an infected condition is no bar to its use. In patients who are frequent sufferers from eczema the exposures should be charted carefully, as, even with long intervals, it is, in my opinion, not justifiable to give indefinite exposures to one part.

The question of washing in eczema is one of great importance. One has to remember that ordinary water is markedly hypotonic in relation to the blood-serum, and it is, in my opinion, due to this that plain water is so irritating in eczema. For many years now I have substituted 1 per cent. salt solution for plain water, and have allowed it to be used freely for sponging, or even in the bath at 99° F. I find that the solution should be slightly hypertonic rather than hypotonic, and this is, of course, the case with saline of 1 per cent. strength. It soaks off scabs and washes away any infected discharge, and affords the patient great comfort. Only very rarely have I found the skin resent it. Starch may be added as well if desired, but of course no soap must be used.

It may be noted that sea-bathing is beneficial in most cases of seborrhœic eczema.

Internal Treatment.—From long experience I have convinced myself that there is no internal treatment which has the slightest influence on eczema itself, but in some cases it is possible to discover some internal error, the correction of which renders the actual eruption more amenable to treatment and recurrence less likely to occur.

Of course, such obvious troubles as dyspepsia, gout, and anæmia demand appropriate treatment, which it is unnecessary to detail here; but there are some more insidious troubles which are most likely to be overlooked, and reference will therefore be made to them below.

Dealing still with general internal treatment, we may first study the question of diet. In many cases the ordinary diet of the patient, provided that it be reasonable in amount and quality, need not be altered. In those cases, however, mostly acute vascular, in which it is found that the coagulability of

the blood is less than usual, and that lime salts are deficient, it is well to cut out all articles containing vegetable acids, such as sour fruit, rhubarb, and tomatoes, and to give rather large quantities of milk, and perhaps a weekly dose of ½ drachm of calcium lactate. In other cases, generally of sluggish chronic type, the power of the kidney to excrete salt may be found low, and this appears to be of extreme importance. In such cases the salt should be resolutely cut out of the diet as far as is possible, and, moreover, the nitrogenous part of the food should be reduced to the minimum which is compatible with health. Alcohol is practically never useful, and in most cases is harmful. It has a marked effect in dilating the cutaneous vessels, and thus increasing hyperæmia, and, in addition, it is particularly apt to excite itching. Tea is usually harmless in the absence of dyspepsia, but coffee appears to excite pruritus in some.

Obviously, all rich and highly seasoned dishes must be forbidden, as well as shell-fish and decomposing foods, such as high cheese and game.

Certain drugs have a reputation in acute eczema, and these are chiefly saline purgatives and depressants. There is no doubt that, where acute eczema comes flashing out in a patient who has been living too freely, perhaps for some years, a regular course of saline aperients is of value, and in such cases also depressants, such as the vinum antimoniale in 15 minim doses, may be of help. In most cases, however, actual drug treatment seems to do little or nothing for acute eczema.

In patients with an unduly excitable vasomotor system generally, quinine may be used as in urticaria, high doses (gr. iii. to gr. v. t.d.s.) being given for a short time.

More important is the question of sedatives. In all cases of eczema where the nerve factor seems to be important in the causation, and in those others where itching is so intense as to prevent sleep, sedatives must be given, and, in my experience, chloral and bromide of potassium have generally produced the best effect. If one can get the patient to take paraldehyde, which is unlikely, I believe this to be the best hypnotic and sedative of all, and it appears to be perfectly safe in large doses and to have no tendency to create a drug habit. In an elderly man with severely pruriginous eczema

complete recovery took place after the administration of paraldehyde in doses up to ½ ounce every night. Morphia should be avoided, if possible, since, if given by the mouth, it is apt to derange the digestion, and hypodermically it often causes pruritus.

Lastly, among drugs we may mention arsenic. This remedy has a most widespread and ill-founded reputation among the public for all varieties of skin diseases, and it is probable that more harm than good has been done by its indiscriminate use. In eczema it should be, at all events, limited to the most chronic and indolent cases, as in all acute cases it is contra-indicated. The only types for which I give it are those affecting the palms and soles in a chronic, scaly, and fissuring form, and for eczema of the nails. It should be given in increasing doses for a short period until the limit of toleration has been about reached. Thus, one may begin with 3 minims of liq. arsenicalis three times a day, and rise by 2 minims every three days until 15 minims are reached. After a fortnight of this treatment the dose should be gradually decreased, and the drug discontinued at the end of about eight weeks.

Spa Treatment.—This, although a favourite form with some, has yielded very unsatisfactory results with me. The cases best suited are those in whom a long-continued period of overfeeding has caused some of those symptoms which are grouped under the heading of irregular gout, and possibly the nervous cases. For the latter, however, I have found the pure quiet air of moderate altitudes most beneficial.

The question of pyogenic infection in eczema is important. It is not uncommon to see a case of simple eczema in which pustulation is not a marked feature gradually become more and more pustular and then become accompanied by furunculosis. In these cases, directly the pyogenic organisms are seen to be getting a hold, the vaccination treatment introduced by Wright should be begun. The cases in which I have instituted this form of treatment have shown results such as I have never been able to obtain by other means, and not only has the purulent moiety of the eruption rapidly cleared up, but the simple eczematous inflammation has begun to yield as well to the ordinary local treatment.

Infantile Eczema.—A short notice of eczema as it occurs in children is necessary, owing to its possessing certain peculiarities. Two main types are to be observed—namely, the simple and the seborrhœic. The simple form occurs chiefly on the face, leaving the scalp free, the neck, and the region covered by the diaper. The type of eruption is usually intensely inflammatory, with marked serous exudation, the whole of the deep epidermis becoming denuded. The cause of this eruption has been carefully examined by many observers, and it has been put down to teething, dyspepsia, and all the various ills to which infants are prone. The investigations of Dr. Arthur Hall have shown, however, that no constant relationship to any internal disorder exists.

Probably the most reasonable explanation lies in a slight exaggeration of the ordinarily high susceptibility of the delicate infant's skin to external irritants. Added to this is the fact that the surroundings of the infant after birth are extraordinarily different from those *in utero*, and no infant is ever born showing the eczematous eruption. Thus, the child is washed frequently with soap, its skin is often in certain regions in contact with septic discharges such as fæces and decomposing urine. In hot weather the deep folds become irritated by the decomposition of the sweat. Its face is often wet with saliva and vomit, and this accumulates beneath the cheek on the pillow and causes maceration.

The seborrhœic form seems to start as a pityriasis capitis, beginning with normal desquamation of the skin of the head in the first few weeks of birth, and becoming infected from contact with the scurf from the mother or attendant. This spreads down at first in the figurate type characteristic of this disease, but rapidly excites an acute inflammatory eruption indistinguishable from the simple type due to other causes.

Before making remarks upon the treatment of infantile eczema it is advisable to enter into the question of the advisability of curing eczema in children and its relationship to internal diseases. The belief, which is so widespread as to be held by at least one eminent dermatologist, that the too rapid curing of eczema may result in harm to the patient seems to be limited almost entirely to the case of infants.

Now, I have observed again and again that, in children

whose eruption has defied treatment, a slight acute febrile illness will cause almost instantaneous improvement in, or disappearance of, the eruption. From this I believe has sprung the idea that one can determine the illness by causing the eruption to disappear. That this might have some possible truth I am willing to admit, if I could first convince myself that one can forcibly cure infantile eczema, but I must say that I agree with Malcolm Morris in finding myself unable to calm down the eczema of infants abruptly. If the treatment employed only secures the correction of gastro-intestinal troubles, the avoidance of irritation of the skin by harsh soap, decomposing secretions, scratching, and infection by pyogenic organisms, I cannot see how it can be detrimental. Moreover, one must remember that there are cases on record—very few, it is true—in which children with extensive eczema have contracted a fatal pyæmia.

In the treatment of eczema a careful inquiry into the feeding must be instituted, and any error corrected. Bathing with soap must be strictly forbidden, and even gelatin or oatmeal water should be used as little as possible. Careful drying with a soft, warm towel, by blotting rather than rubbing, and subsequent powdering, should be carried out as a routine method.

The child **must not scratch.** To prevent scratching the best method is to fasten small cardboard splints to the extensor surfaces of the arms, so that, while allowed to wave the arms about, the child is prevented from getting the hands to the face. No method with which I am acquainted will, however, prevent the scrubbing of the head and face on the pillow.

No special internal treatment is necessary beyond the rectification of any constitutional error that may be discovered.

Locally, I have found in very wet cases the application in equal parts of lime water and lotio nigra most often of service. When slightly less exuding, Lassar's paste, or a similar paste with 1 per cent. of resorcin instead of the salicylic acid, or the zinc cream with 1 or 2 per cent. of camphor added, is valuable; sulphur is not usually well borne. It must never be forgotten that one must not apply evaporating lotions over large surfaces in infants, for fear of producing pneumonia.

Dermatitis Exfoliativa—Pityriasis Rubra.

In England these two names are regarded as synonymous, but in Paris a very complicated classification is made.

The disease may be divided into three types:

1. Dermatitis exfoliativa neonatorum. This has been already dealt with under impetigo contagiosa.
2. Primary dermatitis exfoliativa.
3. Secondary dermatitis exfoliativa.

The primary variety is rare and very fatal, and is sometimes associated with the name of Hebra, who described it under the name of pityriasis rubra.

Symptoms.—The disease begins with the appearance of symmetrical red areas, usually in the flexures of the joints. These, circumscribed at first, spread progressively, until large sheets of skin are involved or the process becomes universal. The affected part is of a dusky red, not specially thickened, quite dry, and covered with large papery scales which are easily detachable. The surface beneath the scales is extremely shiny, and the slightest movement gives rise to a fine wrinkling, which is always diagnostic of œdema of the epidermis. The nails become brittle, discoloured, and lost; the hair falls out, though not as a rule to complete baldness; and there is progressive loss of flesh and strength. As time goes on there is an almost complete loss of the subcutaneous fat, so that the skin gives the impression of atrophy, but I do not think there is in reality any irreparable change in it.

In the secondary variety precisely the same features are seen, with the exception that, if the disease is not universal, the characteristics of the primary skin disease may be found at the edge. The diseases to which the conditions may be secondary are chiefly psoriasis, eczema, lichen planus, and erythema multiforme.

The pathology is unknown, but a condition indistinguishable from the secondary type may be produced by overstimulation of the skin by such drugs as chrysarobin, mercury, etc. Some observers believe that the primary form is associated with tuberculosis, and one case has been published in which numerous tubercle bacilli were found in sections of the skin, but this was probably a disease of different nature. The



DERMATITIS EXFOLIATIVA



SEVERE PITYRIASIS ROSEA
(The Scales showed Complete Absence of Organisms)

anatomical changes are those of marked œdema and parakeratosis of the epidermis, hyperæmia with dilated capillaries and œdema of the papillary body, and a curious change in the staining reactions of the fibrous and elastic tissues similar to that seen in senile degeneration of the true skin.

The *diagnosis* of dermatitis exfoliativa has to be made from generalised scaly eczema, especially the seborrhœic form, and from psoriasis. From the former the diagnosis may be impossible to the naked eye, but in a case of mine recently under treatment I failed to find any bottle bacilli in the scales. They showed, however, here and there regular small colonies of staphylococci, a condition which I have never found in psoriasis. This is probably due to the fact that, although apparently dry, a small amount of serous exudation takes place and affords a breeding-ground for these organisms.

The *prognosis* is, on the whole, bad in the primary, and favourable, though always serious, in the secondary cases. I have, however, seen one patient with the primary disorder who, after wasting almost to a skeleton, put on flesh and recovered completely.

The *treatment* should consist of applying to the skin such applications as seem comfortable to the patient and keep down sepsis. Stephen Mackenzie's favourite application was ʒi. of glycerin and of glycerinum plumbi subacetatis to a pint of water, but this has appeared to me to macerate the skin too much. My case got well on Lassar's zinc paste, and was taking large doses of strychnine at the time. Baths seem to be well borne and lessen the discomfort of the patient, and I am under the impression that small amounts of potassium sulphide (ʒi. to 30 gallons) are beneficial.

CHAPTER XII

PSORIASIS—PITYRIASIS RUBRA PILARIS—PITYRIASIS ROSEA

Psoriasis.

This is one of the commonest diseases of the skin in England, and is at the same time one of the most resistant to treatment.

Symptoms.—The disease commonly appears towards the end of the first decade of life, but I have seen it as early as three weeks after birth, and have been assured that the first attack has appeared in the forty-eighth year. When appearing for the first time in youth, the eruption often comes out in small blotches all over the front and back of the trunk, spreading from there on to the arms and legs, and clinging to the extensor surfaces of these while dying away on the body. The classical sites of predilection in well-established psoriasis are the extensor surfaces of the knees and elbows, the lumbar region, and the scalp. Less commonly it occurs on the front of the trunk and the face, while on the palms and soles it is distinctly rare. The term psoriasis palmaris et plantaris has been applied to any desquamating syphilide of these regions, has nothing to do with true psoriasis, and had better be avoided. The initial lesion is a reddened and scaly papule, both the redness and scaling apparently developing together, so that one cannot say which is the earlier. The papule rapidly increases in size and usually in the abundance of its scales, so that a spot $\frac{1}{4}$ inch in diameter (guttata) to that of a crown (nummulata), or even larger, may be formed, and the eruption may become universal. Very large patches may either remain evenly affected, forming large sheets, or they may resolve in the centre to form rings (annulata). Such rings in their extension intersect, and as the eruption always dies away between the points of intersection, polycyclical figures are formed (gyrata). The scaliness is very variable, being usually



ANNULAR PSORIASIS
(Note the Unusual Affection of the Inguinal Regions)

most marked on the knees, elbows, and scalp, in the last situation forming thick knobbed projections easily felt through the hair.

Occasionally, however, scaling is reduced to quite slight dimensions, the angry red patches seeming to be only glazed, but scratching with a blunt instrument will always raise up some characteristic scales. In such cases the scalp may be only diffusely scurfy. The scales are often yellowish when undisturbed, but if scraped they immediately take on a silvery lustre, and they may be lifted off in a thick lamina by careful scraping from the edge, disclosing an intensely shining and apparently moist base. A piece of cigarette paper will show, however, that there is in reality no moisture present. The base thus denuded is of red colour, and examination through a lens will reveal tiny red points, which are the heads of dilated and congested papillæ, and if a gentle scratching be persisted in, minute hæmorrhages occur at these points. The hair is not usually much thinned by the occurrence of the disease in the scalp, but the nails, in the not uncommon cases where the matrix is affected, become thickened, ridged longitudinally, and discoloured to a dirty yellowish hue. The intervening healthy skin is usually very fine and soft, and the patients have often a very high-coloured complexion, but psoriasis may occur in those with pale, muddy, and greasy skins.

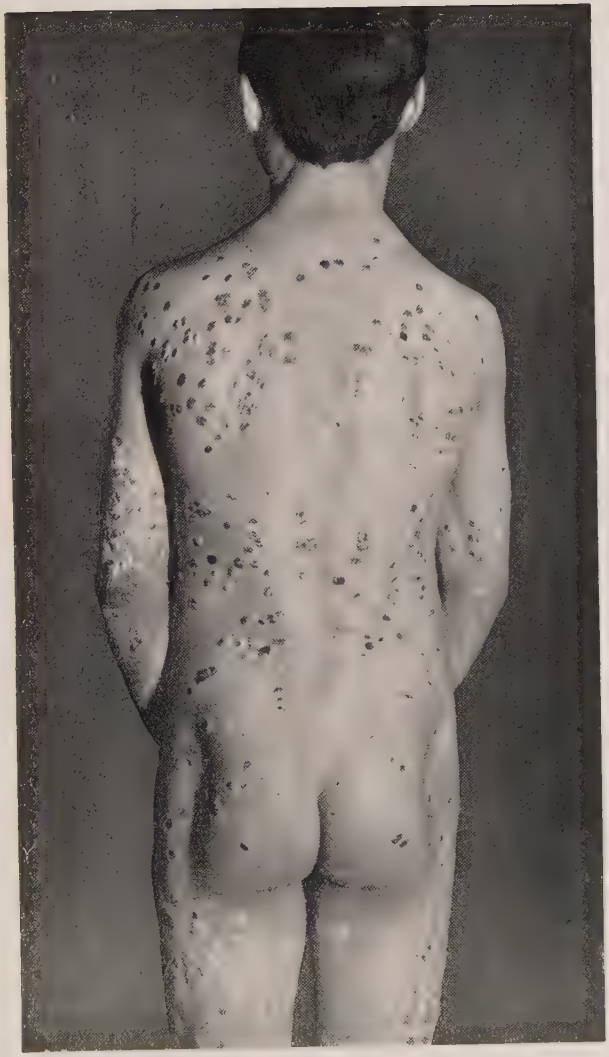
In some cases the scales become so heaped up that they simulate the crusts seen in rupia, and by shrinkage they cause a depression round the edge, so that one might suspect an ulcer beneath (psoriasis rupioides); but on removing the scales the skin rises to its normal level and shows no loss of substance or discharge. In other cases the shrinkage of scales causes by pressure a slight concavity suggesting atrophy, but this also disappears on removal of the scales. Occasionally the eruption attacks the follicles almost exclusively, and in this case the individual lesions tend to remain small.

Secondary complications of psoriasis are rare, with the exception of fissures in parts which are subject to much movement, such as the wrists and fingers. It must not be forgotten, however, that dermatitis exfoliativa may supervene on widespread psoriasis. Subjective symptoms are very variable, itching being generally absent, but it may be present, and is

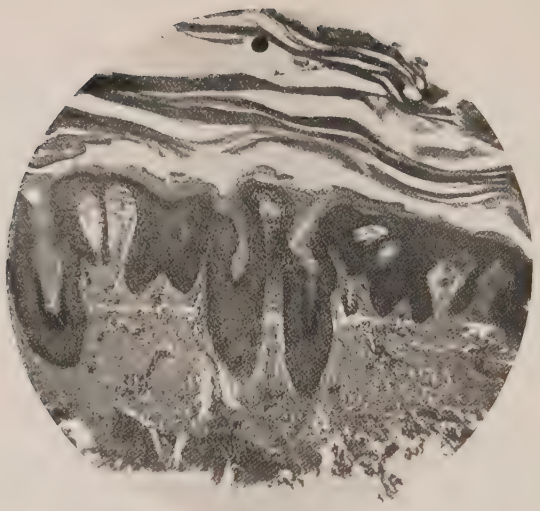
occasionally intense, usually when the eruption takes the form of small patches and is coming out rapidly. The general health is usually very well maintained, but occasionally other troubles are associated with the eruption. The chief of these are headache and nervous instability, and a peculiar form of arthritis closely resembling multiple osteo-arthritis of small joints. The association with rheumatism, either in the patient himself or his family, is certainly common, but I am not convinced that this occurs more often than in other people, since some form of personal or family rheumatism is so common in this country.

Course.—Psoriasis is one of the most variable and capricious of diseases. As a rule the first appearance is in the form of a more or less acute outbreak, and this has a tendency to disappear spontaneously, leaving only a few patches on the sites of predilection. There is then a tendency for the eruption to reappear in the cold weather and to disappear more or less completely in the summer; but occasionally these conditions are reversed, the eruption being most marked in hot weather. Long periods of complete freedom occur in many cases, while in others, called by the older authors inveterate psoriasis, the eruption remains always present, and if removed by appropriate treatment, recurs at once on being left alone.

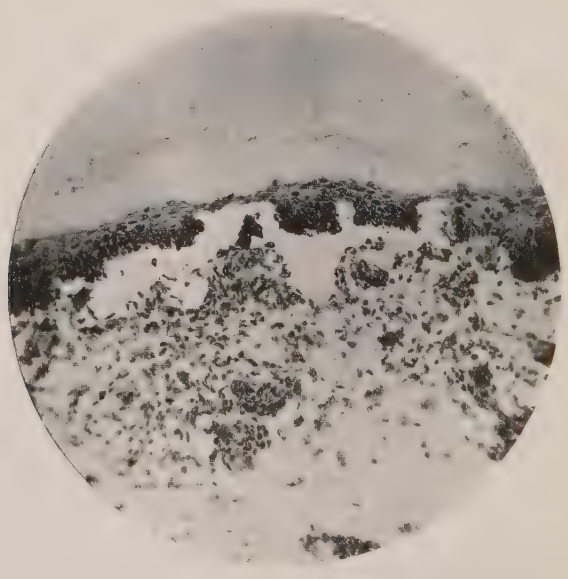
Etiology and Pathology.—The etiology is entirely unknown. In my experience the disease is commoner in women than in men in the proportion of nearly two to one; but this is not in accordance with the statistics of some other observers. It is certainly apt to occur, especially after child birth and during lactation, in those subject to the eruption, and it usually disappears during pregnancy. I have found no special association with gouty states, and this is in agreement with the opinions expressed by Garrod, and is in strong contrast with the conditions which obtain in eczema. As regards the pathology, there are, as is usual in the case of diseases of unknown origin, three current opinions—namely, that it is a neurotic condition, that it is toxæmic, and that it is parasitic. None of these, as far as I am aware, has any foundation in ascertained fact, unless one or two rather questionable instances of inoculation are accepted as valid.



Generalised Acute Psoriasis



SECTION OF PSORIASIS PAPULE SHOWING THE SCALES AND THE DILATED PAPILLÆ WITH THINNING OF THE OVERLYING EPIDERMIS



PAPULE OF ACUTE LICHEN PLANUS SHOWING THE CELLULAR PROLIFERATION IN THE CORIUM AND THE DETACHMENT OF THE ENTIRE EPIDERMIS (so-called Lacuna). X 400

Anatomically, one finds a marked dilatation of the capillaries in the papillæ, with some proliferation of the connective-tissue cells and œdema of the papillæ. This causes the heads of the papillæ to rise nearer to the surface, so that only a few prickle cells lie between them and the scale, while the inter-papillary epithelial processes extend more deeply than normal. In the epidermis itself the intercellular channels are slightly widened, and contain a few emigrated leucocytes, the epithelial cells themselves showing moderate proliferation. The granular layer is partially or entirely lost, and the horny cells retain their nuclei and protoplasm (parakeratosis). Here and there groups of leucocytes are found embedded in the scale, and often small masses of blood are included. The scale itself shows the most remarkable absence of all the common micro-organisms affecting the skin, and this is the case even with scales taken from the scalp, thus affording a perfectly diagnostic distinction between psoriasis and seborrhœic eczema or pityriasis alba.

Diagnosis.—The chief diseases likely to be confused with psoriasis are: ringworm; scaly, and especially seborrhœic, eczema; scaly syphilides; and pityriasis rosea.

Ringworm generally shows some fine vesiculation of the border, and has a special tendency to attack the follicles; it is rarely symmetrical, and there is often a history of infection. Of course, the microscopic test is decisive.

Seborrhœic eczema, although forming rings and discs, appears to do so by the formation of fresh follicular papules around the initial lesion rather than by the extension of a single papule. The skin is always greasy, and the scales are not usually so coherent as in psoriasis. The localisation affects especially the sweaty regions, and itching is almost invariably present. A few scales stained with methylene blue at once show the bottle bacillus, and generally staphylococci and micro-bacilli, in seborrhœic eczema, whereas no organism is to be found in psoriasis.

Scaly syphilides, in the absence of other symptoms of syphilis, are distinguished by their infiltration—*i.e.*, the sense of solid new formation which they impart to the finger. Other distinguishing points may fail, but this never. There are, however, precautions to be taken in using this characteristic,

the chief being the complete removal of the scales from a doubtful papule, since their hardness may trick the inexperienced into believing that deep infiltration is present. Pityriasis rosea is exceedingly like psoriasis in some cases, but there is usually a history of a single patch followed by a sudden outburst. Also, a close examination shows that all the fine scales have the loose edge directed inwards, while in psoriasis the outer edge is almost always the freer. The curious light pink of the lesion and the wrinkled centre in pityriasis rosea are also of great help to those familiar with both eruptions.

Treatment.—Psoriasis is a disease with regard to which we may say that we have a strong influence over the eruption at any given time, but none over the ultimate course. As a rule, no error of health will be found, but any deviation should, of course, be remedied as far as possible. No special diet seems to do any good for the eruption, and two of the most widespread cases I have seen occurred in vegetarians, though meat is held responsible by some for the appearance of the disease. Where quite convenient, the patient should live in a warm climate, and the seaside is often beneficial. Bathing, both in the ordinary bath with soap and in the sea, should be encouraged, and if the disease is so extensive as to cause trouble by the shrinkage of the skin on drying, this can be easily remedied by the inunction of grease. Internally, arsenic is still, in my opinion, the only remedy for which at all specific qualities can be claimed. It is commonly asserted that arsenic should not be administered in acute outbreaks, but, having accepted this on the authority of others for some time, I have convinced myself that though in a few cases it may aggravate the eruption, in the majority of acute cases it is undoubtedly beneficial. The great point is that it should be given in sufficient doses, up to $\frac{1}{2}$ grain a day if the patient can stand it. I am in the habit of using Fowler's solution and beginning with 5 minims three times a day, raising the dose by $2\frac{1}{2}$ minims every third day until 15 minim doses are reached, or the patient shows unpleasant symptoms. Should the rash disappear completely, the arsenic should be gradually diminished (by $2\frac{1}{2}$ minims per dose a week) until it is left off. It is said that arsenic has no effect in keeping off the eruption, and that it may be efficacious in one attack and useless in the same

patient in the next. With the former of these statements I cannot agree, having known patients who for months together were free from the eruption while taking the drug, and in whom cessation for a single week was followed by its appearance.

A drug sold under the proprietary name of enesol, and said to be salicylarsinate of mercury, has had a great vogue in recent years. After a fairly extensive trial of it I must admit to being greatly disappointed. Besides arsenic, certain other drugs have a great reputation. Salicin, in doses of 20 grains three times a day, was highly esteemed by Radcliffe-Crocker, by whom it was first recommended for this disease, but after a careful trial in many cases I cannot say that I have ever found it of benefit. Thyroid extract has also been strongly recommended, and I have certainly seen a few startlingly good results from large doses (30 to 60 grains a day); but it is very unreliable, and one can never tell which is the suitable case.

Potassium iodide is worth trying in an obstinate case; it must be given in large doses (60 grains to $\frac{1}{2}$ ounce a day), and, curiously enough, these heroic doses seem to act as a stimulant rather than a depressant, many patients acknowledging an extraordinary sense of well-being. In addition to these, certain resinous and tarry compounds are occasionally of signal service, such as copaiba, sandal-wood oil, turpentine, carbolic acid, and creosote. The last named I have tried in numerous cases with good results, and in one case resistant patches of nine years' duration disappeared in three weeks under its use without any local treatment. It should be given in high doses (15 to 60 minims a day), and is best dissolved in about six times its bulk of glycerin, and shaken up with milk, when it forms an emulsion which endures for days. It is, of course, a very disagreeable remedy, and is so uncertain that I seldom use it now.

Local treatment is very important, and of all drugs perhaps chrysarobin (not chrysophanic acid) is the most efficacious. In cases of widespread eruption the patient should devote himself entirely to the treatment, as the drug needs care in use. After thorough bathing and softening of the scales the unguentum chrysarobini of the pharmacopœia should be well rubbed in all over the affected parts with the exception of

the face and head. These are not treated with chrysarobin for fear of setting up œdema of the face and acute conjunctivitis. Next day a further bath is taken, and it is well to add ¼ pound of washing soda to 30 gallons of water, after which the ointment is again rubbed in. In about three weeks the skin is usually clear, or if, before then, marked inflammatory symptoms supervene, the drug must be stopped; but a mild erythematous reaction is beneficial. The drug stains everything indelibly and colours the healthy skin brownish-purple, and when the patches themselves also take this colour, the disease may be considered to be temporarily banished. For local patches, the plan described under ringworm of painting the patch and an inch round it with a 1 in 8 solution of the drug in chloroform, and, after drying, covering it with a still larger piece of rubber plaster, is excellent.

Another valuable drug is pyrogallol, which may be used in 10 per cent. strength; but care must be taken not to treat too large a surface at one time, as the drug is absorbed and may cause poisoning, discoloration of the urine being the indication of absorption. Tar is perhaps the most generally useful, as it is practically non-toxic and does not cause any very unpleasant symptoms, while it is very efficacious. It may be used in the form of the old and dirty unguentum picis liquidæ, in full strength or diluted, or the more refined varieties —oleum cadini, oleum betulæ albæ, or oleum fagi—may be substituted as follows:

℞ Ol. cadini v. ol. fagi v. ol. betulæ albæ ʒii.
Saponis mollis .. .. ʒi.
Adipis .. .. ad ʒi.

It may be used anywhere, but is, of course, very dirty for the head and face. Tar folliculitis must be watched for, and its appearance is an indication for temporarily stopping the drug. The official liquor picis carbonis is a good remedy for milder cases, and may be painted on full strength or diluted as the case requires. A colourless form of tar, known as anthrasol, has been introduced, but in my experience it is not powerful enough for well-developed psoriasis.

Other drugs are carbolic acid, β-naphthol, and resorcin, and the mercurials. All these are cleanly and moderately efficient in mild cases. They find their use chiefly for psoriasis of the

scalp and face, for which I am in the habit of using an ointment containing ½ drachm of resorcin or β-naphthol to the ounce of white precipitate ointment. This should be made up in small quantities, as it soon decomposes and turns greenish-black. Some observers prefer to begin with sedatives, such as zinc or diachylon ointment, in acute cases. I rarely find this necessary, and as it entails a loss of time I content myself, as a general rule, with a rather milder form of tar in inflammatory cases.

Lastly, single and obstinate patches of psoriasis may be removed by exposure to X rays. This method has the advantage of being cleanly, convenient, and very efficacious. Its disadvantage is that if the disease reappears in the same place time after time one has to give it up, as it is not safe to expose the same part to X rays an indefinite number of times. A dose of four-fifths of a pastille will often clear a patch entirely, or a half-pastille dose may be given once a week for three weeks. Some of my patients with long-standing psoriasis have told me that the patches disappear for a longer period after the X rays than they do as the result of any other treatment.

Pityriasis Rubra Pilaris.

Symptoms.—This very rare affection begins with a scaliness of the head and face, resembling to a certain extent ichthyosis. Soon afterwards a peculiar hemispherical follicular papule makes its appearance on the trunk and limbs, and the disease becomes generalised and often universal. The initial papule is about the size of a millet seed, and bears in its centre a small spine through which the lanugo hair grows. This papule may enlarge to the size of a lentil or larger, but does not usually do so. As the papules multiply the skin becomes universally reddened, and the sensation imparted to the hand is that of a nutmeg grater. The extensor surfaces become covered with mortar-like scales; the nails are deformed, discoloured, and often lost; the palms and soles become scaly and fissured; and the arms, and especially the phalanges of the fingers, become studded with black points where the rough spines catch the dirt. The general body surface is reddened and scaling, and a hypertrophy of the epidermis gives rise to a state of licheni-

fication. Deep fissures may form at the joints, the face becomes drawn and stiffened, and ectropion and epiphora occur. The general health suffers but slightly, though some loss of weight is usual. The disease is essentially chronic in its course, but may get well and recur.

Etiology.—Nothing is known of its etiology, but a very few cases have occurred in families in which other members have suffered from psoriasis. The anatomy shows the changes of psoriasis plus those of a deep hyperkeratosis of the follicle. The well-established disease can be mistaken for no other, but slight cases can be confused with the acuminate form of lichen planus (with which the disease has been erroneously considered identical), with ichthyosis, and with psoriasis. Careful attention to the entire clinical condition is sufficient to prevent mistakes.

As regards *treatment,* that for psoriasis has been recommended, and thyroid extract especially has been found of service. In my experience nothing is of the slightest benefit, and a case of mine was unaltered by any form of treatment which I have found recommended.

Pityriasis Rosea.

This is a disease whose importance is almost solely due to the errors of diagnosis to which it is likely to give rise.

The disease may occur at almost any age, but I have not seen it under seven years of age, and it is commonest in young adults. It is also distinctly more common in females than males, and second attacks do not often occur. It is most frequently observed in the period of the year from February to May.

Symptoms.—Very frequently a single patch of eruption (the "herald" patch) appears from four to ten days before the rest, but the disease may come out all at once. The initial lesion is a small, indeterminate, pink papule, about $\frac{1}{8}$ inch across, showing practically no scaling and slight, œdematous swelling. In a short time an essential peripheral extension takes place, until the lesion attains a diameter of $\frac{1}{2}$ to 2 inches. It is then roughly circular in outline, but tends to become oval near the axillæ and over the ribs, the long diameter lying

parallel with that of the lines of cleavage of the skin. When thus fairly developed, the lesion may be either a patch (P. maculata) or a ring (P. circinata). In the former case the patch is made up of a bright pink urticarial areola, on the inner side of which a few very dry-looking scales are attached with the free edge pointing inwards, and inside this is a yellowish-red area of skin, which appears almost atrophic and very dry, and on the slightest movement shows a fine wrinkling, such as is always seen where the horny layer is badly formed. In the ring form the centre is almost normal skin, but still shows a slight yellowish discoloration, due, no doubt, to a little blood-pigment left from the congestion. The eruption comes out in crops, either from the first or, as has been said, after the preliminary appearance of a single patch. In cases where this "herald" patch has been present one may often detect it by its superior size, even when the rest of the eruption is in full development. The lesions are found in all stages together, from the finest papule to the large patches, and they affect chiefly the chest, back, shoulders, upper arms, loins, abdomen, and thighs. I am not aware that it has ever occurred on the palms or soles, and on the face it is rare. The individual lesions usually last about ten days, and the entire course of the disease from two to ten weeks; cases have, however, been known in which it has lasted six months or longer. The subjective symptoms vary greatly, but itching is often present, and sometimes extremely severe. Nothing is known of its etiology, but it is suspected that it should be classed among the eruptive fevers, owing to its apparent protectiveness and its self-limited course. A trifling sore throat and febrile disturbance have been described by some authors, but I have seldom seen these. The anatomy appears to show a minute deep vesiculation which dries before reaching the surface, thus corresponding with the common rule of the skin, that that which to the eye is so markedly dry is microscopically associated with excessive moisture.

Diagnosis.—The main eruptions with which this disease is likely to be confused are tinea circinata, seborrhœic eczema (pityriasis alba on the body), psoriasis, and syphilis. The first of these was so persistently confounded with P. rosea that the existence of the latter was altogether denied, and it

was classed under the name of herpes tonsurans maculosus et squamosus. There is, however, no doubt of its separate existence, and the diagnostic points are as follows: First, the widespread distribution of the lesions in adults; secondly, the absence of any visible vesiculation or follicular papules; thirdly, the peculiar yellowish-pink colour; and, lastly, the absence of all parasitic elements as found by the microscope. In the seborrhœic pityriasis there is a greasy appearance invariably present, the lesions tend to come out less in crops, and they recur from time to time; there is the formation of definite follicular papules, and the microscope shows some or all of the trinity of micro-organisms—the bottle bacillus, the staphylococcus, and the micro-bacillus.

Psoriasis usually forms much heavier scales, which are more coherent. In P. rosea the red and shining base, after detachment of the scales, is not present, and the disease shows no predilection for the elbows and knees, and never attacks the scalp.

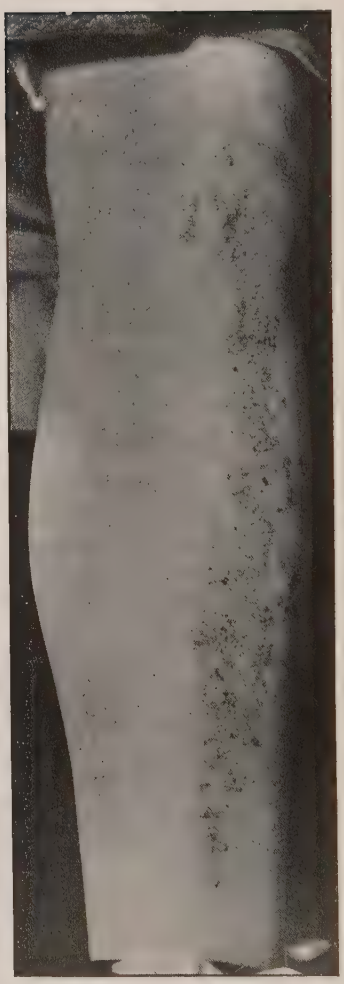
Syphilis is not really so difficult to distinguish in most cases, but it is confused because pityriasis rosea is so little known, except to the specialists. The distinguishing points are the absence of scaling, unless well-developed papules are present, in which case the presence of marked infiltration will be found in syphilis. The dark red colour of the syphilide, the more general distribution, and the presence of adenitis and other signs of constitutional infection are guides.

Treatment.—It was formerly taught that we were unable to modify the course of the disease by treatment, but I have gradually become convinced that the application of the following lotion twice a day shortens the duration of the disease materially:

℞	Pulv. calaminæ præp.	ʒiii.
	Pulv. zinci oxidi	ʒii.
	Sp. vini rectificati	ʒi.
	Liq. picis carbonis	ʒiss.
	Aq. rosæ	ad ʒviii.



LICHEN PLANUS
(Generalised Type)



LICHEN PLANUS
(Linear Type)

CHAPTER XIII

LICHEN PLANUS—LICHEN SPINULOSUS—PARAKERATOSIS VARIEGATA

Lichen Planus.

This is one of the less common diseases of the skin, but it occurs with sufficient frequency and is associated with symptoms severe enough to entitle it to an important place in dermatology.

Symptoms.—The characteristic lesion of lichen planus is a small firm papule involving the epidermis and the corium beneath; at first extremely minute, it enlarges until it attains a diameter of $\frac{1}{12}$ to $\frac{1}{8}$ inch, and beyond this, except in very rare cases, it does not extend. It is not uncommon for lesions to coalesce to form ringed patches, and on rare occasions rings may be formed by the central resolution and peripheral extension of individual papules. The outline of the papule is most commonly called polygonal, and, where two or three run together, a slight groove is seen to separate the individual lesions. The papule, although at first scarcely raised above the surface, and hardly to be seen except when viewed in oblique light, soon rises to form a flat-topped elevation of a lilac pink to brown colour. The consistence of the well-developed papule is extremely firm, and gives the impression of "infiltration" to the finger. The surface of the papule is at first smooth and shining, but later slight scaliness may develop, and a central pit is often present. Careful examination with a lens reveals the fact that the pink surface is traced over with numerous fine pearly-white markings, which are absolutely characteristic of the disease. The eruption is usually symmetrical, and shows well-marked sites of predilection—namely, the flexor surfaces of the wrists and forearms, the inner surfaces of the lower parts of the thighs and the shins, and the penis in men.

In widespread cases almost every part of the body may be

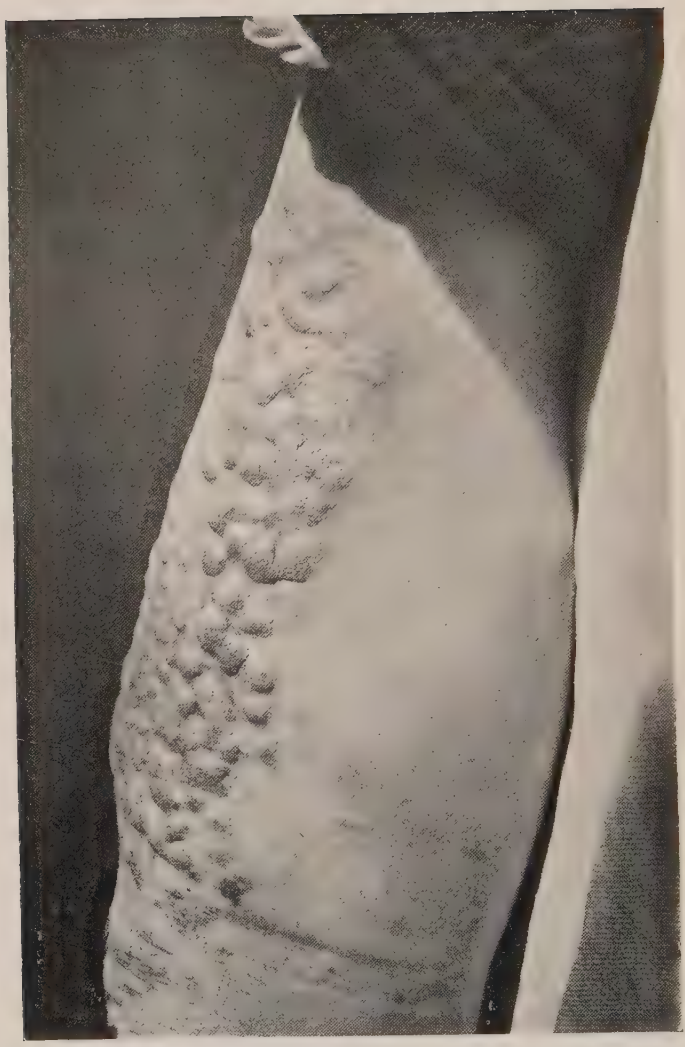
attacked, including the front and back of the trunk, the palms, the soles, and the scalp, but it is very rare on the face. The mucous membrane of the mouth, especially of the insides of the cheeks, and that of the vagina, are not uncommonly affected, but I do not know of its affecting the ocular conjunctiva. The grouping of the individual lesions is rather noticeable, the eruption tending to form little lines and curves, and often a somewhat lace-like pattern, but large sheets also occur, and it is especially liable to come out at the seat of local irritation—*e.g.*, on scratch marks or where garters or corsets press. Sometimes the eruption appears unilaterally and forms one large streak of lesions—for instance, following the course of the great sciatic to the heel, or running down the front of the shin.

Besides the typical plane papule above described, there is also found the pilo-sebaceous or follicular. In this form there is very little redness or papule formation, but the chief change is a marked follicular hyperkeratosis, resulting in the development of a follicular spine, which becomes rapidly blackened by dirt. Such papules, found alone, are perhaps hardly to be diagnosed, but they frequently occur mixed up with the usual eruption. By the confluence of these follicular papules cushion-like sheets of various size are formed, and in these the deep infiltration and epidermic overgrowth become very marked. There is thus formed a patch, usually of oval shape, raised $\frac{1}{8}$ inch above the surface, and of dark purplish-brown colour. The surface is quite characteristic, being rough and studded with minute holes where the horny follicular plugs have fallen out, so that on close examination the surface resembles that of fine pumice-stone. This variety has been given a special name—lichen planus verrucosus. Another rather uncommon form is that known as lichen obtusus corneus. In this the lesions are much larger—up to $\frac{1}{4}$ inch in diameter—are dome-shaped and circular in outline, and often rather heavily cornified on the surface.

Lastly, in very rare cases bullæ may develop beneath the papules and raise large areas of the total epidermis from the papillæ beneath. Such a development may occur either as an essential part of the disease or as the result of arsenical treatment.



LICHEN PLANUS LINEARIS



LICHEN VERRUCOSUS OF TIBIAL REGION

The subjective symptoms of lichen planus are extremely important. First, with regard to itching, although in some cases of even widespread disease itching is entirely absent, it may be said to be usually distractingly intense. The general nervous system of the patient commonly seems to be in a state of intense irritability, and a loss of control over the emotions, a tendency to be easily startled, and insomnia, apart from itching, are frequently noted.

Etiology and Pathology.—There is a great difference of opinion as to the frequency with which a history of nervous shock or overstrain is associated with lichen planus. On the whole, I am inclined to think it is present in a large number of cases, though many occur in apparently perfectly healthy individuals. Some observers believe in the etiological connection with violent sweating suddenly checked, and I know of at least one case where the disease came out acutely in a single night after a hard bicycle ride on a warm evening in the rain and the subsequent sitting in the wet clothes. The effect of withdrawal of small quantities of the cerebro-spinal fluid seems to indicate some relationship to the central nervous system.

Recently it has been contended that lichen planus is the result of septic absorption from the tooth socket, and it has been claimed that apical abscesses of the teeth may be found by means of the X rays. This I have been unable to substantiate, and I have had one patient suffering from generalised lichen planus who had had every tooth removed many years before the attack.

Organisms have been described in connection with the disease, but none are generally accepted. In my opinion, the development and histology favour the theory of chronic intoxication rather than any other view.

The *anatomy* of lichen planus shows that the eruption is formed about equally by the corium and epidermis. The earliest anomaly that I have been able to find is an increase of the endothelium of the capillaries, and the budding off of cells into the papillary body to form a circumscribed area of infiltration. Very soon the exudation of serum, which evidently occurs at the same time, raises the epidermis in its entirety from the papillæ, forming a microscopic vesicle. The

epidermis itself undergoes somewhat excessive proliferation, and the granular layer is patchy, in places thickened, and in places absent. This irregularity of the granular layer is important, as it is the cause of the pearly striæ seen in the papule macroscopically, and already stated to be characteristic of the disease. The sweat glands usually show moderate dilatation, and are surrounded by some infiltration. In the follicular papules the horny thickening is seen to affect not only the actual follicle, but also the mouth of the sweat gland in close proximity to it, and the deeper infiltration is slight. In the hypertrophic patches there is a marked deep infiltration, with verrucose overgrowth of the epidermis, so that microscopically it might be difficult to distinguish from verrucose tuberculosis, but there is never any sign of degeneration and necrosis.

Course.—Lichen planus is so capricious a disease that it can hardly be said to present a characteristic course. Extremely acute generalised cases often appear to die away spontaneously at the end of a few months, but even in these a few lesions are generally left about the wrists and legs, and persist for long periods. Other cases of more insidious onset seem to show very little tendency to get well, and the most resistant forms are the verrucose patches and the linear streaks. It may be noted that, in any form of lichen planus apart from treatment, the involution of the lesions is often accompanied by marked brownish pigmentation which may last for months, and by a definite atrophy of the skin consequent upon the pressure of the infiltration, and, of course, permanent. In rare cases the disease may run on into dermatitis exfoliativa.

Diagnosis.—The chief eruptions likely to be confused with lichen planus are psoriasis, papular eczema, lichen urticatus, one form of seborrhœic eczema, syphilis, and lichen scrofulosorum. With psoriasis the disease should not in reality be confused, since in lichen planus there is the characteristic infiltration, the absence of primary scaling, and the limited extension of the papule. Eczema is only mistakable when the papules are dying down, and the same applies to lichen urticatus. In both cases the surface, if flat and shining, is really covered with a fine serous scab, and its removal will reveal slight serous discharge. In seborrhœic eczema, where

dry, flat papules are mixed with follicular horns, the diagnosis may be very difficult. The points of distinction are the characteristic localisation of the seborrhœic disease; the absence of the little lines and curves, and the greater tendency to form rings; the absence of infiltration; while, if necessary, a little antiseborrhœic treatment will usually clear up the case.

Syphilis simulates lichen planus only in its early stages, and may do so so completely as to preclude the making of a positive diagnosis by the rash alone; but there are always other signs of syphilis to be found in this stage. Lichen scrofulosorum is almost limited to children, and usually to those with obvious tubercular foci; there is also present the tendency to form discoid groups, and the common development of minute pustules, while the lesions are all follicular.

The distinction between lichen planus and pityriasis rubra pilaris needs a few words. According to Kaposi, the disease described by Hebra was identical with what is recognised by others as pityriasis rubra pilaris, and during his lifetime Kaposi never admitted that the latter disease was a distinct entity. Consequently, much confusion arose between the two, but this has now practically disappeared. The differential diagnosis can only arise in the case of a lichen planus in which the follicular papule is a marked feature, and the distinction can usually be made from the following points: Pityriasis rubra pilaris shows slight pink papules with marked horns, tending to run into sheets and form heavy mortar-like scales; lichen planus papules run into sheets, and form violet-brown infiltrated patches with warty thickening. Pityriasis rubra pilaris nearly always affects the palms and never the mouth; lichen planus seldom attacks the palms, but frequently the mouth. Pityriasis rubra pilaris is invariably associated with a peculiar scaling of the scalp, which is not present in lichen planus, and there is seldom marked itching or nerve disturbance in the former disease.

Treatment.—The treatment of lichen planus varies greatly according to whether the disease is acute or chronic, associated with nervous excitement or not. Two drugs stand out as more or less specific for the eruption—namely, arsenic and mercury. The former is usually efficacious in the less inflam-

matory types, and the latter in the more. Occasionally, however, very acute cases which do badly under mercury melt away rapidly under arsenic. As regards the form in which mercury should be given, some favour the biniodide, but I have generally found drachm doses of the liquor hydrargyri perchloridi efficient. Where arsenic is given it should be pushed nearly to the limits of toleration.

Not infrequently the excitement and itching may be so severe as to call for sedative treatment. Opium may then be given, and in some cases seems actually to have a direct effect on the eruption, and this is perhaps not astonishing when one remembers that the eruption is also determined by scratching. If opium be for any reason contra-indicated, the bromides and antipyrin may be used, often with great benefit. Salicin has its friends, and I have certainly seen benefit in those cases in which horny thickening of the palms and soles has occurred.

Of recent years a new treatment has been introduced—namely, the withdrawal of a few c.c. of cerebro-spinal fluid by means of lumbar puncture. I have tried this in a few very severe cases, with astonishingly good results in most. In fact, in only one case was the improvement doubtful.

The method should, in my opinion, be reserved for severe cases.

Locally lukewarm bathing and douching over the spine is of service, and tar may be applied either in the bath or as a lotion.

℞	Liquor picis carbonis	ʒiii.
	Hydrarg. perchlor.	gr. ii.
	Sp. vini rectif.	ʒiv.
	Aq. destillatæ	ad ʒxvi.

Smaller resistant patches may be treated with carbolic acid and mercury ointment (acid. carbolic., gr. xx.; hydrarg. perchlor., gr. ii.-v.; ung. zinci, ad ʒi.), or unguentum picis liquidæ diluted to a quarter of its official strength. Very resistant patches may be treated with 10 per cent. pyrogallol ointment or 30 per cent. salicylic plasters, and if these are unsuccessful they may be usually removed by the X rays or burnt down with the benzoline cautery.

Lichen Spinulosus.

A short note may be given of this disease, which is placed here because of its doubtful relationship with lichen planus. The eruption consists of a slight reddening of the follicles combined with hyperkeratosis to such a degree that a little spine is produced.

Symptoms.—The eruption occurs chiefly in children, but may also be seen in adults. Its only importance lies in the diagnosis, and the following hints may be useful:

All the follicular eruptions of dry type are liable to be complicated by the formation of spines. Thus they are found in the dryer forms of seborrhœic eczema (especially in children), in follicular lichen planus, follicular syphilides, and follicular tuberculides.

In cases where none of these eruptions is present one must still be on one's guard, as in some cases the apparently pure follicular hyperkeratosis is afterwards associated with typical lesions of lichen planus.

The *treatment* of the simple lichen spinulosus is by soaking in a hot alkaline bath, followed by thorough friction with 4 per cent. salicylic acid ointment.

Parakeratosis Variegata.

This is an extremely rare disease whose limits are not accurately defined. It appears in the form of the eruption of scarcely raised, pinkish papules, sometimes carrying a fine scale, and arranged in a retiform manner all over the trunk and extremities. It is extremely indolent, and no treatment appears to be of any avail. Fortunately it is not associated with any marked symptoms.

CHAPTER XIV

TUBERCULOSIS

Several different types of eruption are associated with infection by the Bacillus tuberculosis. In the first place, there are the definitely progressive forms of tuberculosis of the skin: lupus vulgaris, tuberculosis verrucosa cutis or verruca necrogenica, scrofulodermia, and the miliary tubercular ulcer. Secondly, there is the group of lesions showing little or no tendency to progressive invasion, and known as the tuberculides. Thirdly, there is a class of eruption whose relationship to tuberculosis is doubtful, of which the chief member is lupus erythematosus.

Lupus Vulgaris.

Symptoms.—The essential lesion in this disease is a small nodule in the corium. This lupus nodule varies in size from that of a pin's head to that of a small pea, and may be situated immediately below the epidermis, or may lie deep in the true skin. It is usually of a reddish-brown colour, and semi-translucent, and when the blood is driven from it by pressure shines forth as a purely brown spot. At first it is hardly, if at all, raised above the surrounding skin, and when the finger is passed over it no sense of increased resistance is experienced; but, on the contrary, if the nodule is sufficiently near the surface, it imparts a sensation of softness and loss of tissue. After the first nodule has been present some time, and has enlarged to a certain extent, new nodules appear in its immediate vicinity. These may be sufficiently distant from one another to be recognisable as distinct lesions by the eye, or they may become confluent with the original, so that an even patch of brownish colour and soft consistence is produced. The patch so formed has, however, almost invariably a finely scalloped margin, and is generally raised above the surface to



Hypertrophic Lupus of the Nose with Common Type of Lupus Vulgaris on the Thigh



Lupus of the Face with Squamous Epithelioma Growing on the Diseased Area

a slight extent, about $\frac{1}{16}$ to $\frac{1}{8}$ inch. In some cases the centre of the patch so formed seems to acquire a partial immunity, so that central resolution takes place while the edge is still active and progressive. In such cases the skin in the centre does not return completely to the normal, but shows a soft and atrophic scarring, since the original structure of the skin has been destroyed and has been replaced by new tissue. In addition to this, except in those very rare cases where the disease has undergone a spontaneous cure, **nodules are always present in the central scar.**

When well established, the disease invariably reaches nearly to the surface, even if it has begun deep down, and consequently the epidermis over it is severely damaged. This damage may show itself either in the form of a thinning and fine papery scaling, or there may be actual loss of the epidermis with consequent ulceration. Owing to the thinning and scaling, infection with the common pyogenic organisms is particularly liable to occur, and consequently the surface is apt to be more or less covered with pustules and scabs. Pus infection always increases the redness of the affected parts, and is apt, therefore, to mask the true nature of the disease. The terms *exedens* and *non-exedens* have been applied to the ulcerative and non-ulcerative types respectively, but as the latter term was applied to all kinds of ulcerative disease of the skin, including syphilis, before diagnosis was as accurate as it is now, these names have been very generally dropped.

In some positions, especially on the nose, the granulation tissue may be formed to such excess that the whole organ becomes much enlarged and deformed (lupus hypertrophicus). In other situations, especially on the buttocks and extremities, the epidermis may become so thickened as to develop actual warty prominences (lupus verrucosus).

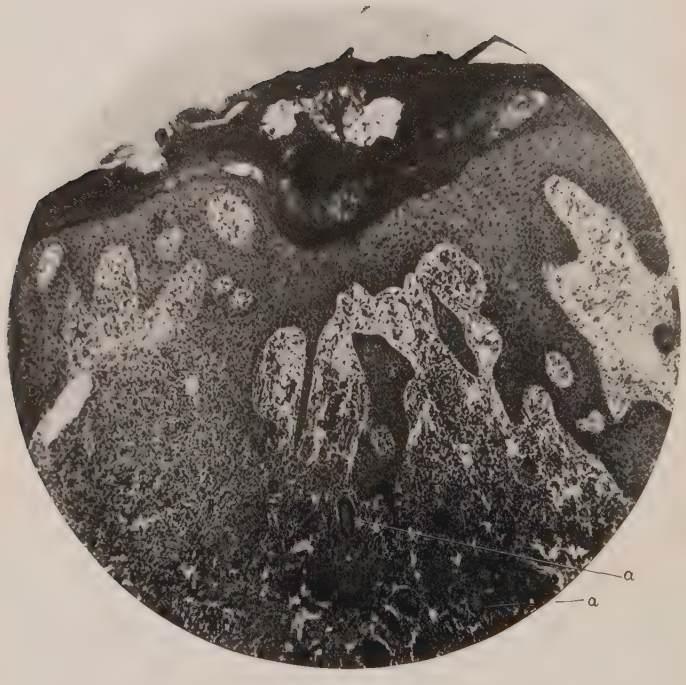
In some cases the granuloma is very superficial and thin, so that while there is no projection of the patch above the surrounding skin, there is also practically no alteration of the texture to be felt. The diseased areas in this type are usually of a bright red, and the surface is finely scaling, so that errors of diagnosis are easily made. On pressing out the hyperæmia, however, the characteristic brown transparency still becomes evident. Lupus is characteristically an asymmetrical disease,

but owing to its having certain sites of predilection it may develop symmetrically. Thus lupus on the nose may, after involving the whole of that organ, spread symmetrically on to both cheeks, and thus simulate lupus erythematosus. The commonest sites for the occurrence of lupus are the face, especially the nose, when it is almost, if not quite, invariably secondary to disease of the nasal mucous membrane; the backs of the hands, probably by inoculation from the nose; and the buttocks. The scalp is hardly ever affected, and this forms an important diagnostic point. In many cases lupus attacks the gums, while it is rare on the tongue and palate, and fairly common in the pharynx and larynx. It used to be said that internal tuberculosis and tubercular adenitis were very rare in lupus, but adenitis and lung trouble have been found much more commonly associated with it than was previously supposed.

The spread of lupus is almost always very slow, the disease often remaining practically stationary for many years, but sometimes a fairly rapid extension takes place. Thus in one case the face had been gradually covered, and the disease had remained limited to it for twenty years, and then it began to extend rapidly, and in three years covered the entire chest and abdomen.

Lupus vulgaris may begin at any age, but it most commonly makes its first appearance in childhood, and sometimes so early that the parents believe it to be a "birth-mark." It is far commoner in the children of the poor than in those of the well-to-do. Unlike most forms of tuberculosis, the tendency to get well is almost absent in lupus, and among all the cases which I have seen of this comparatively common disease, I can only recall two in which a patch has undergone a more or less spontaneous cure.

Etiology.—The ultimate factor in the etiology of lupus is, of course, the tubercle bacillus, but there are other factors of interest. Although, as has already been stated, the disease is one of the lower classes, it is by no means confined to the apparently delicate or ill-developed. In cases affecting the nose it is probable that the mucous membrane is affected first by inhalation, or possibly by the bacillus falling into one of those fissures of the ala which are common with colds; while



SECTION OF LUPUS VULGARIS WITH SLIGHT SECONDARY PYOGENIC INFECTION AND SCABBING. *a a* GIANT CELLS. X 400

lupus of the buttock may be acquired by the scrubbing of the child's nates along the floor before it has acquired the power of walking. Such cases are instances of lupus produced by direct inoculation of the skin from without, and some observers state that this is invariably the method of infection in this form of tuberculosis. This view is certainly incorrect, as one may occasionally observe the appearance of multiple patches of lupus as a sequel to some acute infective fever, most commonly measles, and in some instances a bursting tubercular lymph node will form the starting-point of a characteristic lupus.

The *anatomy* of lupus varies a good deal according to the type of case. Most commonly the epidermis is atrophied down to only a few layers of cells, and the horny layer is broken up into detached scales. Beneath the epidermis, either in a sheet or in nodules, is found a mass of tubercular granulation tissue in a more or less advanced stage of degeneration. In some cases the typical giant cell system abounds, whereas in others there is a central, pale-staining area, surrounded by a dense infiltration of lymphoid cells. Actual caseation is very exceptional, if it occurs at all. The entire constituents of the normal corium, vessels, fibrous tissue, and elastic network, are completely destroyed within the affected area, and replaced by the cellular mass. This is in contrast to most syphilitic lesions, in which the destruction is only partial and often slight. The bacillus is extremely difficult to find in ordinary lupus vulgaris, even in those cases where the giant cell systems are best marked. Minute areas of calcification are occasionally seen, and calcified bodies have been found in the giant cells.

Diagnosis.—Lupus vulgaris may be mistaken for syphilis, lupus erythematosus, rodent ulcer, and, if due attention be not given, for crusted eczema or psoriasis.

From syphilis, lupus may be distinguished first by the fact that, if the edge is still active, there are always nodules in the central scar, while in syphilis, as the serpiginous process extends and leaves a scar behind, the scar remains free from recurrent nodules. Secondly, on palpation the lupus nodule is extremely soft, while the syphilitic nodule, unless already liquefied, is tough. Thirdly, on pressing out the blood, the

brown so-called "apple jelly" appearance is much more definite in lupus than in syphilis. Some advocate as a diagnostic sign the attempt to bore into a nodule with a blunt probe or wooden match, the instrument sinking into the lupus nodule, while syphilis resists; but this is only another way of saying that lupus is soft, while syphilis is tough.

From lupus erythematosus of the more infiltrated type the diagnosis may be extremely difficult. It is very rare in lupus erythematosus to find the yellowish transparency invariably present in L. vulgaris, but I have seen it. The points to be chiefly relied upon are the symmetrical outbreak of the patches in L. erythematosus, which does not occur in L. vulgaris, though the spread of the latter may produce a bilaterally symmetrical patch; the frequent affection of the edges of the ears and the scalp in L. erythematosus; the complete absence of ulceration and deformity from loss of cartilage, or other deep structure; and, lastly, the more advanced age at which the disease commences.

Rodent ulcer is not often confused with lupus, since its harder edge and its clean-cut ulceration, with a vascular base tending to bleed, serve to distinguish it easily. When not ulcerated, the infiltration has an ivory-white, opaque appearance, and not a brown transparency. The age incidence is, of course, an aid. Crusted eczema and psoriasis should never be confused with lupus, since they are essentially superficial diseases, while lupus is deep. This mistake has, however, been made, and always by neglecting to study the all-important "infiltrative" character of lupus.

Prognosis.—The prognosis of lupus as regards life is favourable, since the patient rarely dies of his affection. In every other respect the prognosis of a case in which the disease has already affected an area of any great size is unfavourable. As has already been mentioned, the tendency toward spontaneous recovery is almost entirely absent, and the tendency to relapse is great. All kinds of most horrible deformities and mutilations occur, and as the disease most frequently affects the face, the results are terribly repulsive. In rare cases epithelioma develops on the affected area, and is then of a peculiarly malignant and fatal variety.

Treatment.—It is impossible, owing to limitations of space, to go into complete details of all the forms of treatment which have been followed by successful results. The scheme adopted, therefore, will be to give practical advice as to the form of treatment to be adopted in various types of case, and the details of the manner in which it is best carried out.

First, in the case where the disease is so limited in extent that if it were excised the edges could be brought together and the wound sutured. Here excision is undoubtedly the best treatment, as offering the greatest chance of cure, combined with a scar causing only slight disfigurement. Having made it a rule to cut sections of all the patches of lupus which I have excised, I give the following advice: The lupus surface to be excised should be painted over with pure carbolic or iodine after the surrounding skin has been purified in the usual way for surgical operation. The incision will be wide enough of the disease if it leaves at least $\frac{1}{8}$ inch of apparently normal skin between itself and the patch of disease. As soon as the skin is cut through the incision should be carried obliquely downwards and outwards, so as to undermine the edge of the wound, and **it must be deep enough to remove the whole of the fatty layer.** On the face it will generally be found that some of the facial muscles are included, but this is of no consequence. The piece of tissue thus excised should be nearly, if not quite, $\frac{1}{2}$ inch thick. The skin is then sutured in the ordinary way, and the patient, after healing has taken place, is kept under occasional observation for a year.

Secondly, and most commonly, there is the case where the disease is too large to permit of removal and immediate suture, but is not too large to permit of removal followed by skin-grafting.

All the other forms of treatment are available here.

As regards extensive removal and skin-grafting, I have never done the operation, as it is too great a surgical procedure, but the cases I have seen in which the operation has been done have all relapsed. This I believe to be due to the fact that, in order to avoid a depressed scar, the subcutaneous fat has been left, and the disease has grown up again through the graft. Lang of Vienna has had many successful cases of this form of treatment, but even when relapse does not occur the

disfigurement is frightful, and it should, therefore, in my opinion, be reserved for the trunk and extremities.

Next, we may deal with the operative procedures of scraping and of scarification. Scraping has undoubtedly cured many cases, and it has, in my opinion, fallen into disrepute unwarrantably because it has been badly done. If undertaken at all, the best cases are those which show a tendency to heal in the centre, while maintaining an active edge, and those cases in which previous unsuccessful operations have caused the formation of massive scar tissue. It is worthy of remark that, as Sequeira has pointed out, the Finsen light is much less effective against the nodules which appear in scars and in the grafts after excision. One of the objections to scraping is the risk of generalising the infection, but this is not great in the case of lupus. Scraping should never be trusted to alone, but should always be followed by the use of some escharotic. Of these, fuming nitric acid, acid nitrate of mercury, and zinc chloride are the chief, and the last is, in my opinion, so far superior to the others that I use it alone. It is best used by grinding it up with glycerin and water to a paste, and it must be made fresh each time. As regards the actual operation, the great point is to have a small enough spoon—*i.e.*, one not more than $\frac{1}{8}$ inch in diameter—so that one can thoroughly clear out all pockets in the scar which are too small to admit the large spoon. The bleeding is then stopped by pressure and the zinc chloride paste well rubbed in by means of a piece of wood. The whole wound may be covered in with zinc and camphor-phenol paste afterwards to mitigate the pain.

℞	Phenol	ʒi.
	Camphor	ʒiii.
	Pulv. zinci oxidi	ʒii.
	Pulv. amyli	ʒii.
	Paraffini mollis	ʒvi.

After the wound has healed, usually in about ten days' time, the patient must be kept under observation, and come at least once a month for long periods. At first it will be found that on every occasion a few fresh nodules will have cropped up, and these must be bored into with a piece of wood carrying some zinc chloride paste on its point, and the

hole thus made must be packed with the paste. As time goes on these nodules become fewer and fewer, until eventually the scar remains sound. The method, when successful, gives rise to extensive scarring, but, except in those rare cases in which cheloid develops in the cicatrix, it is not unsightly, being smooth, pale, and flat.

Scarification is a method which is almost given up now on account of its tediousness and, unless the patient has a general anæsthetic on each occasion, the pain caused by the operation. The method consists of mincing the affected skin by means, first, of parallel incisions placed as closely as possible; and, secondly, another series set so that they intersect the first at an acute angle. They may be made by means of a multiple scarifier, or a single knife, and the latter is perhaps preferable, as with it one can better judge the depth of the incisions. The incisions should go almost, but not quite, through the true skin, and when the whole patch has been scarified the bleeding should be stopped by pressure and sterilised iodoform well worked in all over it. Healing almost without scar takes place in a few days. In about three weeks' time the process will have to be repeated, and this must be done again and again until the part remains sound. The danger of generalising the infection is not great, though probably greater than with any other method.

If for any reason operative treatment is not desired, recourse may be had to certain drugs which have a selective power of causing necrosis of the diseased tissue to a greater extent than that of the sound. It is not necessary to remove the epidermis to allow them to act, since over the nodules it is so thin and ill-nourished that it immediately gives way on the slight irritation caused by the drug itself. Probably the best of these drugs is pyrogallol, but salicylic acid and antimonium chloride have their advocates. Pyrogallol is best applied in 10 per cent. ointment with a lard basis, and it is spread thickly on lint and applied continuously. In twenty-four hours the nodules will have turned black, and in forty-eight there will be a considerable liquefaction and suppuration. After a week the ointment may be diminished in strength to 2 per cent., under which healing will, as a rule, take place; but if this should not be the case, Lassar's zinc paste, with 20 grains to

the ounce of yellow oxide of mercury, may be substituted for it. In some cases this form of treatment acts very well, but it is usually inferior to scraping, and has no other advantage beyond convenience.

Owing to the great pain attendant on the ordinary pyrogallol ointment I have devised a fresh formula. This is almost painless, and on the whole efficient, though it is not so active as the plain pyrogallol ointment. The formula I use is:

℞ Phenol	ʒi.
Camphor	ʒiii.
Pyrogallol	ʒii.
Pulv. zinci oxidi	ʒiiss.
Pulv. cretæ gallicæ	ʒiiss.
Paraffini mollis	ad ʒii.

Besides these, there are numerous formulæ of ointments claimed to have an effect in causing the resorption of the lupus tissue, but I have seen no great benefit accrue from them. They certainly assist to remove superficial pus infection, but do no more, and their formulæ are given under the pyogenic infections of the skin.

Lastly, we come to other important methods of treatment—namely, the Finsen light and X-ray treatment, and the methods of immunising by bacterial substances.

Finsen's light treatment, for moderately widespread cases which cannot be excised and sutured, is probably still the best form of treatment, but it must be borne in mind that only the original large, high-power arc of Finsen and the smaller Finsen-Reyn lamps are at all reliable in producing results. Details will not be given here, as those who have the apparatus necessary will undoubtedly be familiar with the literature of the subject, but it may be said that the method, in cases where no operative treatment has been undertaken, frequently gives successful results; is not very painful; is unassociated with danger of generalisation; produces no scarring, so that only that caused by the disease itself results; but demands an enormous time and the help of a second person as well as an extremely costly apparatus, while relapse is frequent and may occur after very long periods of apparent cure.

The X rays may be used in small doses to heal ulceration before resorting to the Finsen light. In my opinion, it is unjustifiable to use them for curative purposes. The imme-



TUBERCULOSIS VERRUCOSA CUTIS

diate results are poor and inconstant, and the danger of setting up malignant changes is great. Before the introduction of X rays in the treatment of lupus squamous epithelioma was a very rare complication of the disease, but since they have been used numerous cases have been shown and reported. The trouble is that this being a late complication, it often escapes the notice of the person who treated the patient, and consequently he is not easily convinced of the evil of this form of treatment.

After long experience of the tuberculin treatment of lupus I am sorry to say that I am very unfavourably impressed with the ultimate results. I have seen very many cases uninfluenced or aggravated by it, and in only one case have I had a favourable result. In this case relapse occurred, but was again controlled by tuberculin. If it is to be used at all, I find that the very cautious use of old tuberculin is the only thing to produce marked benefit.

To sum up the methods advised, I may add the following remarks:

1. If small enough, excise and suture.
2. If too large, use Finsen's light treatment when possible.
3. If neither of these is possible, wide and deep excision with skin-grafting in the extremities and scraping on the face, followed by zinc chloride and a constant boring out of relapsing nodules afterwards, using always zinc chloride.

Tuberculosis Verrucosa Cutis.—This is a comparatively benign and very indolent form of tubercular infection of the skin, occurring almost invariably on the hands or feet. It is seen on the hands of those engaged in post-mortem work (verruca necrogenica), of butchers, and of children living in houses where tubercular patients live.

Symptoms.—The lesion usually takes the form of a large warty patch, with fissures which extend down into the corium and cause bleeding. The amount of papillomatous formation varies a good deal, and may be so great as to obscure the infiltrated base on which the warty thickening develops, but usually there is a well-marked reddish cushion extending round the lesion. The disease is distinguished from ordinary warts by this infiltrated base, and by the large area involved.

Anatomy.—Microscopic section shows a mass of granulation tissue in the true skin, and an enormous exaggeration and irregularity of the sinuous line of junction between the epidermis and the corium. This irregularity may be sufficient to cause a momentary confusion with epithelioma, but the edge is quite circumscribed, and error will not arise if care be taken. Bacilli may occasionally be found, as they are not so rare as in lupus.

Treatment is not so very difficult as a rule, the X rays or the constant application of a strong (25 to 50 per cent.) salicylic acid plaster usually sufficing to remove it in a few months.

Scrofulodermia is the term applied to the chronic tubercular ulceration and infection occurring where tuberculosis of the deeper structures, such as the glands or bones, reaches the surface and bursts through. The ulcers so formed have pale granulations, and a pearly, thin, undermined edge of epithelium surrounding them. Healing and breaking down are constantly occurring, and finally scarring with ridges and depressions results. This form is also somewhat benign, and often heals up with general tonic and fresh-air treatment, especially when combined with thyroid feeding.

The acute miliary ulcer is rare, and is only seen in patients with advanced internal tuberculosis, generally phthisis. The ulcer is commonest at the junction of skin and mucous membrane, such as the lip. It is a shallow ulcer of somewhat rapid development, the floor being studded with typical tubercular nodules, and it forms an exception to the general rule of tubercular affections in that it is very painful.

Treatment is best carried out by a thorough scraping of the base and the constant dressing with iodoform. Owing to the advanced internal disease always present in patients with this form, it is of grave import.

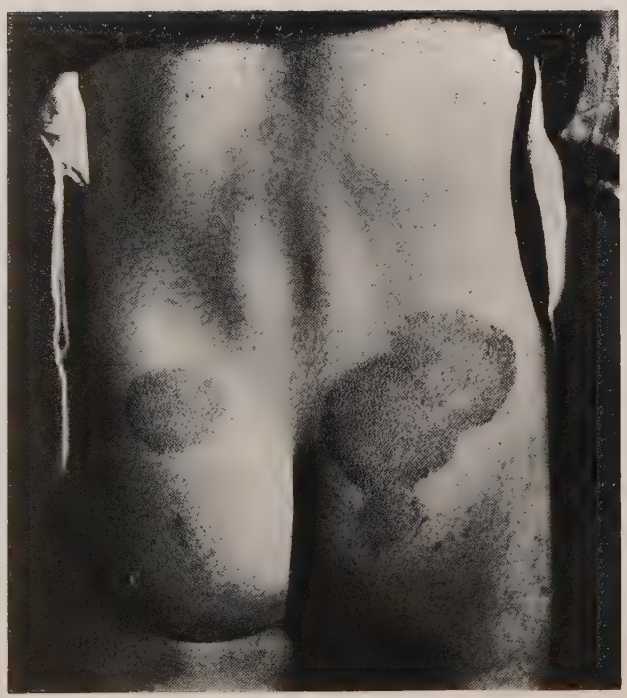
The Tuberculides.

The characteristics of this group are the following:

They occur symmetrically or asymmetrically, but not as the result of local inoculation or direct extension from other tubercular lesions. They show a great tendency to softening



SCROFULODERMIA SECONDARY TO TUBERCULOSIS OF THE BONE



LICHEN SCROFULOSORUM IN A CHILD WITH TUBERCULAR GLANDS



HIDRADENITIS SUPPURATIVA DESTRUEUS. (The Patient was Suffering FROM TUBERCULOSIS MAMMÆ)

PLATE XXXVII

and ulceration, but not as a rule to progressive spread. They are commonest in the earlier years of life.

(*a*) Lichen Scrofulosorum (Miliary Follicular Tuberculide).

Symptoms.—This appears as minute follicular papules, usually grouped and appearing in patches on the chest, abdomen, buttocks, thighs, and upper arms. The papules are of a brownish-red and wax-like appearance, and often carry either a minute horny excrescence or an indolent pustule. Healing occurs slowly but spontaneously with the production of minute cicatrices, which do not as a rule extend deeply enough to destroy the hair. They may be mistaken for seborrhœic folliculitis, but the absence of itching and the greater chronicity and infiltration should serve to distinguish them. From the small follicular syphilide they are individually indistinguishable, but the absence of other signs of syphilis and the age of the patient (usually from three to fifteen years) are important points.

Generally such patients show signs of tubercular adenitis or of bone disease, and the disease may last some months and then heal up for a time, successive crops of lesions coming out again and again.

(*b*) Acne Scrofulosorum (the Acneiform Tuberculide).

This affection occurs also chiefly in children, and is distributed on the upper and lower extremities.

Symptoms.—The lesions come out in crops, each lesion lasting two or three weeks, and the whole disease several months. The lesions are not grouped, but occur as isolated, lentil-sized, bluish, œdematous, and infiltrated papules, with a well-defined indolent pustule in the centre. Scarring is produced on healing, and is much more marked than that of lichen scrofulosorum. The disease is generally mistaken for congenital syphilis, but there are no other signs of this disease, and, moreover, it occurs later than any generalised eruption of congenital syphilis.

Treatment.—Both these forms may be successfully treated by fresh air, good food, and cod-liver oil.

(*c*) Tubercular Gumma (Nodose Tuberculide).

This form occurs usually in early infancy, and I have not seen it later than five years.

Symptoms.—The lesions may be single or multiple, are asymmetrical, and may occur anywhere. The disease first appears as a nodule beneath the skin, which gradually rises to the surface, turns a bluish-red, and enlarges to the size of a hazel-nut. Central liquefaction occurs, and the node bursts and discharges a glairy fluid, and then usually heals within three months, leaving a depressed and often irregular scar behind.

Treatment.—Opening, scraping, and dressing with iodoform expedite the cure, while fresh air and cod-liver oil are the best methods of preventing recurrence.

(*d*) Erythema Induratum (Bazin's Disease).

Two forms of disease are known under this name, one of which is tubercular while the other is not, but will be described here for the sake of convenience.

The first variety, or true Bazin's disease, almost invariably affects girls from the age of thirteen to twenty-five years, though cases have been seen as late as thirty-five years, and I have seen it in young boys.

Symptoms.—The eruption appears in the form of deeply seated nodes in the subcutaneous fat, most commonly in the lower thirds of the legs, but also affecting the dorsa of the feet, and occasionally the extensor surfaces of the arms. These nodes, at first apparent only to the touch as a small nodule, grow in size to that of a hazel-nut or larger, and first become adherent to the skin, and then, extending more superficially, develop a reddish-blue colour, and show as large discs of shining skin, varying in size from $\frac{1}{4}$ inch to 1 inch in diameter. They then have a hard and brawny consistence, and cause a certain amount of dull aching pain. The further course of a lesion may be in one of two directions: either it may slowly resolve, leaving a certain amount of atrophy of the skin to mark its former site, or it may liquefy in the centre and burst, allowing the escape of an oily liquid, and leaving an indolent, punched-out ulcer. There is practically no tendency to the spreading of the ulceration, unless it becomes septic; but, on the other hand, there is also no tendency to heal. The development of one lesion may take several weeks, and as fresh ones appear from time to time, the disease may last years.



ERYTHEMA INDURATUM (Tubercular Type)



ERYTHEMA INDURATUM (Non-tubercular Type)

The *pathological anatomy* shows an immense amount of fat necrosis and œdema, with a chronic infiltration having a certain resemblance to tuberculosis. Bacilli have not been found in the lesions, but guinea-pigs have been infected in one or two experiments by inoculation of portions of tissue from the lesion.

The *diagnosis* lies between the disease in question, that next to be described, and gummata. From gummata the distinction may be made, first, by the symmetrical distribution; secondly, by the absence of history or signs of syphilis; thirdly, by the absence of reaction to antisyphilitic treatment and the negative Wassermann reaction; and, fourthly, by the positive reaction to a diagnostic dose of the old tuberculin.

The *treatment* should be by rest in bed with the feet raised and by general tonics.

The second variety occurs, as I have seen and described it, exclusively in women of from thirty-five to forty-five years of age. They have been sufferers from chronic rheumatism supervening on typical acute rheumatism, have shown an irritable condition of the heart without valvular lesion, have been neurotic and dyspeptic.

Symptoms.—The nodules are perhaps smaller and are much more painful. They occupy similar positions, and may become sufficiently superficial to discolour the skin; but I have not seen any burst, possibly because the pain leads the patient to lie up too soon. They are more apt to affect the arms as well as the legs, and they run a much more acute course, coming rapidly, lasting weeks while the patient is up, and resolving quickly after a few days in bed.

Pathology.—Histologically they show a chronic infiltrative inflammation, with the formation of new connective tissue, giant cells, and an enormous endothelium-like swelling of the fat cells with disappearance of the fat, a picture with which I am unfamiliar in any other disease. There is no reaction to tuberculin, and the tissue does not infect the guinea-pig. I believe they form a variety of chronic rheumatic nodule in the skin, and are the result of septic absorption, often from teeth.

No treatment except lying in bed has been of any service in my hands, but the results of this are efficacious.

The third group of diseases to be described under the heading of tuberculosis occupies a very doubtful position.

The following characteristics are common to them all:

They occur more frequently in patients with some form of mild tuberculosis, such as tubercular adenitis, than in those free from tubercular taint, but both clinical and post-mortem examination has shown that they are not invariably associated with tuberculosis.

The lesions do not generally infect guinea pigs when inoculated into them. The patients sometimes, but not invariably, give a positive reaction to tuberculin.

The *histology* does not generally resemble that of tuberculosis.

1. **Lupus Erythematosus.**—This disease is essentially one of adult life and of middle age, but it may rarely be found in the young, and it affects women more frequently than men.

The actual lesion varies a good deal, and accordingly the disease has been separated into different types.

Symptoms.—The so-called sebaceous type appears as a red, infiltrated spot of indolent character, which rapidly becomes covered with a hard, chalk-like scale. On attempting to remove the scale it breaks up, proving very adherent, and when a large piece is detached it shows on its under-surface minute prolongations which were originally thought to pass into the sebaceous glands, but are now known to be often unconnected with these and to be merely processes of cornification dipping into the epidermis.

The patch from which the scale has been removed is thick, rather hard and infiltrated, brownish-red in colour, and often shows some dilatation of the veins over its surface. It also shows pits where the little horny processes have been detached, and not infrequently bleeds as the result of the violence used in extracting them. The commonest sites for the development of the disease are the nose, the malar eminences, the ears, the scalp, and the dorsal surfaces of the fingers. The disease is apt to occur symmetrically, and by the involvement of the nose and the cheeks to cover an area shaped somewhat like a butterfly or a bat. Hence the term bat's-wing or butterfly lupus.

When it occurs on the scalp it causes an intense congestion

around the follicles, of which it produces complete atrophy, so that circular bald cicatrices, of white colour stippled up with red, are formed. On the hands it resembles chronic chilblains. The disease spreads centrifugally, and has a tendency, more or less pronounced, towards central involution. In some cases, therefore, it appears as large white areas of scar surrounded by a red, thick margin, while in others the whole patch remains red. The scar may be either very fine and smooth, or, if the scale has been strongly developed and the horny processes have been large, there may be a good deal of pitting.

Ulceration is never present, but some patients give a history of discharge at one period, and I have seen one case begin with the formation of a bulla.

The erythematous type shows no scales, but is a persistent œdematous erythema with angiectasis and central atrophy; in some cases it forms red nodules, and a nodular type has been described from this symptom.

Scarring from the erythematous type is invariably of the very fine smooth variety, and is sometimes absent or barely perceptible.

An acute form also occurs, flashing out over large areas and resembling erythematous eczema; but vesiculation does not often occur, and a slight pearly atrophy is present early.

The ears are chiefly affected round the edges, which become pitted and shrivelled, and in the fossa of the helix. Patients with lupus erythematosus suffer frequently from chilblains, and it may be impossible in winter to decide whether a lesion is a chilblain or part of the disease itself, which is nearly always worse in cold weather. The inside of the mouth may be affected.

The *pathological anatomy* shows a thinning of the epidermis with irregular cornification, a deep infiltration of the true skin of indeterminate character, and a marked œdema of the whole area.

The *pathology* is unknown, but it has been pointed out by Sequeira and Balean that albuminuria is a not uncommon accompaniment, and it is claimed by Wilfred Warde that atrophic rhinitis is not infrequently associated with it. The

blood coagulation is usually low, and the opsonic index to tubercle is not, as a rule, altered unless there is tuberculosis elsewhere. Barber has brought forward evidence to show that it may be caused by a streptococcal infection of the gums or intestine. I have had one case in a girl of sixteen which was cured by the removal of a suppurating tonsil (streptococcal), and no other active treatment.

Diagnosis.—The disease from which lupus erythematosus has to be distinguished are lupus vulgaris, so-called seborrhœic eczema, and psoriasis. The diagnosis from lupus vulgaris is best tabulated.

Lupus Vulgaris.	Lupus Erythematosus.
Begins usually in childhood.	Begins usually in adult life.
Commonly a single seat of inoculation, or, if many, these are not symmetrical.	Usually begins in a single spot, followed by others symmetrically placed on the opposite side.
A deep infiltration with little redness, and showing as a brown transparency when rendered anæmic by pressure.	A deep hyperæmia with slight infiltration, and rarely any transparency.
May ulcerate or may cause lymph stasis and swelling.	Never ulcerates or causes lymph stasis.
When scaly, scales are fine and easily detached.	When scaly, scales are thick, cretaceous, and adherent.
Scarring deep, and nodules reappear in the scar.	Scarring superficial and fine; no nodules in scar.
Destroys cartilage.	Does not destroy cartilage.
Scalp rarely affected.	Scalp frequently affected.
Reacts always to tuberculin.	Reacts rarely to tuberculin.
Slow and steady spread.	Spread capricious, sometimes very rapid.

From seborrhœic eczema and psoriasis the diagnosis is only difficult in the earliest stages, since the presence of scarring at once settles the question. The chief points are the presence of very deep and persistent hyperæmia with slight infiltration, and the resistance to ordinary forms of treatment which are usually rapidly efficacious for any one patch of either eczema or psoriasis.

Treatment.—In the treatment of lupus erythematosus two facts must be always borne in mind. First, that any injudiciously active treatment may rapidly spread the disease; secondly, that the natural scarring of lupus erythematosus is superior to that produced by operative measures.

In dealing with any particular case, it is best to content

oneself with mild measures at first, and especially in cold weather. In all early and at all acute cases cooling applications are the best, and these may be either powders such as equal parts of starch and boric acid, lotions containing powder such as lotio calaminæ, or rapidly evaporating lotions such as equal parts of ether, absolute alcohol, and spiritus menthæ piperitæ, as recommended by Hans Hebra.

Should the disease remain quiescent or show a tendency to spread slowly, more energetic methods may be considered. In all cases where the main disturbance is hyperæmia and the infiltration is slight I recommend the trial of continuous compression by means of the non-flexible collodion, to which, if there is much scaling, 2 to 4 per cent. of salicylic acid may be added. The benefit derived from this form of treatment is only slowly obtained, but after a few weeks it is often marked, and I have seen patches disappear completely under its use. If necessary, the application may be applied at night only, and washed off with acetone during the day; but it is better to renew it once a day, and to keep it continuously applied. Some have recommended the use of either the simple pyrogallol or the oxidised variety known as pyraloxin dissolved in the collodion; but I have not seen any advantage from their use, and both varieties stain the skin black. Should this also fail, one may resort to still more active measures.

The first to be mentioned is that originally recommended by F. Hebra under the impression that the disease was a congestive seborrhœa. It consists of scrubbing the part with the spirit soap solution until the scales are softened off and the skin bleeds a little. The soap is then washed off and a bland ointment applied. This method should only be applied to the more scaly and indolent forms of the fixed cases, and I do not find that even in these the benefit is very marked. Another and perhaps somewhat similar method is the use of simple soft soap, spread as an ointment on lint and kept constantly applied. I have occasionally seen great benefit from this treatment. Next, we may consider the operative methods—namely, scarification and the galvano-cautery. The former leaves practically no scars, and may be applied especially in those cases in which there is a marked tendency to

telangiectasis. The whole surface, and a little beyond, is thoroughly scored with the single or multiple knife, and is advantageously treated afterwards with a 1 per cent. solution of zinc sulphate. In some cases the results are perfect, turning the whole area into the cicatricial atrophy which is the final stage of the disease; but in many cases it fails, and in some it seems to excite a further development. The cautery is extremely efficient, but leaves a good deal more scarring. Some authorities object to its use on the grounds that it leaves worse scars than the disease itself, but this is evading the question. Where the disease runs on even moderately quickly to the atrophic final stage no one would think of using the cautery, but in those only too common cases in which the hyperæmic infiltration tends to persist indefinitely the cautery may be used; and especially in those very rare cases in which the infiltration is so pronounced as to simulate true lupus it is invaluable.

Two more or less new methods have been introduced, both of which have established some claim to success.

The first is the freezing the part solid by the application of solid CO_2 or liquid air for from thirty to sixty seconds. The part is severely blistered, but after the healing the disease is often found to have disappeared, leaving only a faint, pearly scar.

The second is by cataphoresis with zinc or copper sulphate. A current of from 5 to 10 milliamperes should be passed through a zinc or copper electrode and a pad of cotton-wool soaked in the appropriate 1 per cent. zinc or copper sulphate solution. The application should be continued for ten minutes, and repeated when the disturbance caused by it has passed off, usually a week or ten days.

Lastly, we may consider the use of the high frequency and the X rays. Both are employed in the usual manner, and although the high frequency has been much lauded by some, I have not seen good results from its use. On the other hand, I have seen obstinate pitting cases yield absolutely to the X rays.

2. **Acnitis and Folliclis.** Acne agminata (Crocker), one form only. Lupus erythematosus disseminatus (Boeck). Hydradenitis.

Symptoms.—Two forms of this eruption are found. The first, corresponding with the acne agminata of Crocker, appears in the form of small round nodules about $\frac{1}{8}$ inch in diameter, of a brownish-red colour, projecting above the general surface, and giving a well-marked impression of soft infiltration to the finger. Sometimes these nodules show a central, degenerated, yellow spot, and occasionally comedo is present, but more usually the formation is homogeneous and non-suppurative. The lesions are usually limited to the face and neck, but they may occur on the shoulder and upper arms.

The second form (folliclis) occurs more especially on the hands and forearms, and my cases have always been associated with a blueness of the extremities, so marked that one might pardonably mistake the lesion for chilblain. The eruption appears in the form of scattered discrete papules about $\frac{1}{4}$ inch in diameter, and at first more obvious to the touch than the sight. This deep-seated papule gradually rises to the surface, and there is then seen an indefinite pustulation beneath the thickened horny layer. The pustule bursts and leaves a small indolent ulcer, which heals with the production of a depressed scar. My cases also showed a general hypertrophy of the cutaneous tissues of the hands, and had signs of old tubercular adenitis.

Pathology.—Histologically I have examined the folliclis form only in two cases, and both showed the essential lesion to be chronic infiltration around the sweat glands, and the term hydradenitis destruens suppurativa is certainly justified. Crocker found that the acnitis lesion had a general structure resembling that of tuberculosis.

The question of the relationship of these lesions to tuberculosis is still uncertain, but it would seem probable that acnitis is an altogether independent affection, while folliclis is almost invariably found associated with some form of chronic tubercular disease. That the cutaneous lesion itself is tubercular I doubt, being more inclined to view it as a chronic process allied to that of chilblain, and the eruption is certainly worse in cold weather.

One observer has claimed a high percentage of positive inoculations into guinea-pigs with fragments of folliclis.

induration depends on the enormous accumulation of cells around the vessels, and consequently, when these latter are numerous and run from the depth to the surface, a distinct lump is felt; whereas in those parts where the afferent vessels are few and the circulation chiefly depends on horizontal anastomotic branches—*e.g.*, the surface of the glans penis—the induration is more card-like.

The colour of the lesion is almost always a deep red like that of raw meat, and the edge is defined. If an erosion only is present, the surface is glazed, but if, owing to trauma or sepsis, ulceration is superadded, there is often a slight fibrinous deposit on the base.

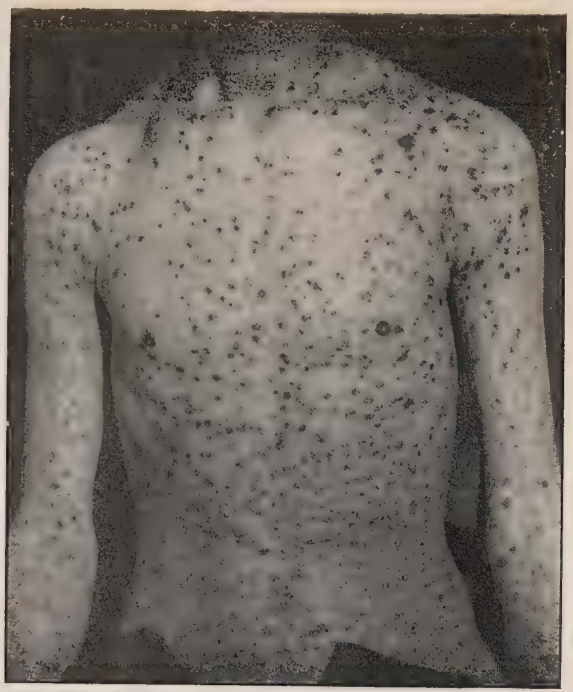
The desquamating papule is a small and often insignificant-looking lesion. It is a lentil-sized, brownish elevation above the skin, covered with a few thin scales; but, on picking up the lesion and rolling it between the fingers, a marked resistance will be felt similar to that of all syphilitic cutaneous lesions.

Indurative œdema is chiefly found affecting the prepuce, the labia majora, or the lips. The part looks simply œdematous, but on picking it up it will be found to have a curious semi-elastic consistency and to resist pitting. It usually occurs with the chancre, but, as stated above, is said to form occasionally the only lesion present.

Shortly after the establishment of well-marked infiltration the lymphatics and lymph glands receiving from the area begin to become affected. The lymphatic vessels may often be felt to be indurated, and can be rolled between the fingers like a piece of thread with knots on it. The glands become hard and painlessly enlarged, and their shape changes from the normal spindle shape to an oval or rounded form (bullet bubo), but lymphatic symptoms may be completely absent. After a lapse of some four to six weeks from the appearance of well-marked induration the early sore throat and the first rash (roseola) make their appearance. This earliest rash is usually erythematous or macular at first. It appears on the lower abdomen and the insides of the thighs, and may become generalised. The lesions forming it are circular or oval bluish-red macules about $\frac{1}{4}$ inch in diameter, and separated from one another by white normal skin, so that the lesions may be likened to the holes of a net of which the strings



Hunterian Chancre of Lip



Large Papular (Lenticular) Syphilide showing the Characteristic Arrangement in Lines Diverging from the Axillæ
(About three months after infection)



VESICULO-PUSTULOUS SYPHILIDE. (About three and a half months after infection



RELAPSING CORYMBOSE SYPHILIDE WITH ATROPHY OF THE AFFECTED SKIN
(Thee years after infection)

correspond to the normal skin. This is in sharp contrast to the normal mottling of the skin from cold, in which the network is formed of the bluish colour and the holes are the normal skin. This rash is best seen in a dull light, and is increased on exposure of the skin, and it is one of the few rashes of syphilis that do not give the sense of "infiltration" to the finger.

The appearance of the roseola is the signal for the commencement of a series of early rashes, one or more of which may occur in the same patient. These early rashes have certain characteristics in common—namely, they are all, with the exception of the roseola described above, infiltrated, but the infiltration is not as a rule so deeply seated as that of the later rashes, and they are generalised over all parts of the body, tending to be specially luxuriant in the hotter parts of the skin. Since they tend to occur together, there results a multiform rash; with the exception of the follicular forms, they do not as a rule show grouping of the lesions, and they do not often show any tendency to peripheral extension of the individual efflorescence.

The first form to appear after the roseola is the large or lenticular papular syphilide. This usually develops from the eighth to the tenth week after the induration of the primary lesion, and may be scanty or profuse. The type of lesion is a raised, rounded, or oval papule about $\frac{1}{4}$ inch in diameter, at first of a bright and later of a dark red colour, with blurred, indistinct outlines. It is usually of greater prominence on the lower extremities: on hot parts, such as the flexures of the elbows, axillæ, groins, and knees; and on very movable parts, such as the nape of the neck. It is scattered over the trunk and extremities without any particular site of predilection, and it often occurs on the palms, the soles, and the scalp. There is, however, a marked tendency for the lesions to be ovoid in places—*e.g.*, the axilla—and for the long axis to follow that of the lines of cleavage of the skin. When the infiltration is marked, the epidermis over it is stretched so as to acquire a peculiar polished appearance, and as the new tissue becomes again absorbed and the tension relaxed, this polished appearance is lost, and the surface becomes finely wrinkled like crêpe. Occasionally the inflammatory process

is so intense that the epidermis is raised into a small bulla, but this is rare.

After the rash has been out a short time the nutrition of the epidermis suffers sufficiently to produce a variable amount of scaling. Sometimes this is limited to a few thin scales on the surface; sometimes the scaling is so marked as to recall the efflorescence of psoriasis, and to this, among other types of syphilitic eruption, the term syphilitic psoriasis has been given. Special mention of this term has been made in order to repeat the protest so often uttered against the use of such hybrid terms. In the first place, it is entirely misleading, since it would mean, if anything, the modification of a true psoriasis eruption by syphilis, or *vice versa;* whereas it is commonly applied to a pure syphilide, and we are not sure whether true psoriasis is ever modified by or modifies syphilitic eruptions. Secondly, even by those who use the term it is not given to a particular form of syphilide, but to any doubtful scaly eruption. The term psoriasis palmaris et plantaris is still more to be condemned, since it is always applied to a pure syphilide of the palms and soles, and true psoriasis does occur, though rarely, in these situations. The statement that palmar and plantar psoriasis is always syphilitic should be altered, therefore, into never syphilitic.

As the lenticular rash fades it leaves behind it a more or less marked pigmentation according to the complexion of the patient and the site of the eruption, the colour being darkest in dark people and on dependent parts. Papules in the mouth become rapidly eroded, and the so-called "mucous tubercle" results; while on the vulva and anus, and occasionally in the axilla and between the toes, marked papillomatous overgrowth may take place, with loss of the horny layer and the secretion of an offensive and very infective mucoid discharge. This is the syphilitic condyloma, and is a lesion which may persist almost indefinitely.

An extremely rare form of early syphilide imitating urticaria is sometimes seen. The lesion is a large and spindle-shaped papule fading off into the surrounding skin exactly in the same way as a wheal. The consistence is, however, much harder, the papule being with difficulty indented, and the individual lesion is persistent.



CONDYLOMA SYPHILITICUM OF THE AXILLA



NUMMULAR SYPHILIDE. (About three months after infection)



CORYMBOSE SYPHILIDE. (About thirteen weeks after infection)

Usually the next form to make its appearance is the follicular syphilide. Two varieties are known—namely, the large and small. The large follicular syphilide is a bright or bluish-red papule about $\frac{1}{8}$ inch in diameter, of somewhat acuminate shape, and extremely hard to the touch. It occurs chiefly on the trunk and limbs, but may also be seen in the beard region. Grouping of the lesions is not as a rule marked, but may occur. In this connection a somewhat uncommon arrangement may be referred to—namely, the so-called corymbose syphilide. This is the result of the development of a group of large follicular papules around the simple lenticular papule which has usually come out first, and is consequently apt to be already in the desquamating stage. The whole rash, all over the body and limbs, then becomes arranged in this peculiar pattern, consisting of large groups, each with a definite centre. This form is usually seen from twelve to sixteen weeks after development of the primary sore, but another and somewhat similar arrangement occurs as a relapse.

The small follicular syphilide is an extremely minute papule of a brownish colour, and gives, on account of its smallness, only a very slight sense of infiltration. It is almost invariably grouped into patches of about the size of a shilling, and is found especially on the trunk and the upper parts of the extremities. It is, perhaps, more apt to be uniform than any other early rash, and it sometimes proves much more resistant to treatment.

Both forms of follicular eruption follow the usual rule of papules situated at the pilo-sebaceous follicle, in that there often develops on the apex of the papule a small horny spine, and both may become pustular, the larger then often simulating smallpox, and the smaller acne. The occurrence of widespread follicular eruptions is of some importance, as it usually indicates a severe type of disease and a debilitated state of the patient, and the further development of any marked degree of pustulation is of still graver import.

Next may be mentioned the nummular or giant papular syphilide. This is a very rare variety, and it causes immense temporary disfigurement, but is not, as far as I know, an indication of a particularly severe attack. The individual lesion is an obtuse papule varying in size from that of a

sixpence to that of a florin. It is greatly raised above the surface, sometimes nearly ½ inch, and is at first extremely hard. After persisting for a time, it begins to resolve with or without treatment, and it then scales profusely, and often becomes so soft as to give the sensation of fluctuation. It does not, however, burst in uncomplicated cases, but after absorption well-defined atrophy of the skin may be left. In extremely rare instances central resolution may take place, giving rise to an annular form.

In rare cases, more commonly in the tropics, the early papular rash may undergo excessive proliferation, with pustular development, giving rise to the formation of large, suppurating, papillomatous tumours, especially on the face (framboesiform syphilide). The growths so produced become extensively scabbed, so that the countenance may be disfigured beyond all recognition, but it is remarkable how little deformity is left after the disappearance of the eruption.

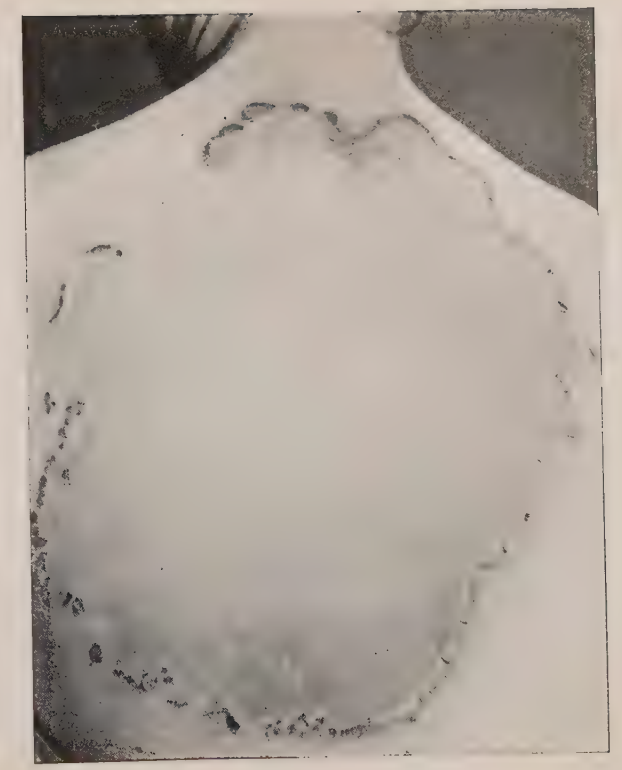
Lastly may be mentioned a syphilide which is not very common, is more frequent in women than in men, and which appears usually towards the end of the first year, though occasionally quite early. It is known as the pigmentary syphilide or leucodermia syphilitica, and is the subject of some dispute. It is distributed chiefly round the neck, but may occasionally descend on to the chest and back, and still more rarely on to the limbs. When fully developed, it takes the form of circular pale (leucodermic) areas on a dark background. These pale areas are at first only about ¼ inch across, and are fairly closely set; but as time goes on they increase at the expense of the pigmented part, so that the neck becomes a network, of which the holes are white and the strands brown. There is never any infiltration or papule formation. The point at issue is the question whether it is a true leucodermia, or whether the white is the normal colour and the dark due to the disease. After careful study I am inclined to think that both are abnormal, and that, as in true leucodermia, there is first a diminution of pigment in the pale areas, accompanied by excess in the surrounding skin, and that finally all pigmentation is lost. Some authors believe that the white areas are the depigmented sites of previous papules, but this is certainly not the case with the well-defined instances of this



MILIARY FOLLICULAR SYPHILIDE
(About three and a half months after infection)



PSORIASIFORM SYPHILIDE. (Second year after infection)



SERPIGINOUS SYPHILIDE. (Twelve years after infection)

form. Loss of pigment does occur after papular eruptions on the neck, but it is quite irregular and unlike that just described. According to Adamson, it is a change secondary to the roseola. Syphilitic leucodermia may last for months or years, and is quite uninfluenced by treatment.

These early rashes have all, with the exception of condyloma and the pigmentary form, a pronounced tendency towards spontaneous resolution, and if the patient is left untreated he will in many cases be quite free at the end of six or nine months. Somewhere towards the end of the first year, however, if untreated or treated only symptomatically, he will probably develop fresh eruptions. These relapsing eruptions may trouble him on and off for an indefinite number of years, and they have certain characteristics in common which help to distinguish them from the original rashes. Thus, they are situated more deeply in the skin; they are more likely to be uniform in type; they usually show grouping, and are not so widely generalised; they are more apt to be of a destructive nature and to spread serpiginously; and they have less tendency to disappear spontaneously. The commonest form is a large, deeply seated papule occurring in one or two groups, with no particular site of predilection. These are not as a rule of an ulcerative nature, but they not uncommonly leave a slight atrophy after involution. They may occur at any time, even as late as thirty years after infection. On the palms and soles they so far interfere with the nutrition of the epidermis as to cause scaling and fissuring (the old name was psoriasis palmaris et plantaris), and although at first sight the syphilitic nature of the disturbance is not obvious, careful observation will show that the initial lesion is a large lenticular papule over which the horny layer scales and cracks, and that the disease has a more or less gyrate form, spreading centrifugally from the original site all over the hand or foot.

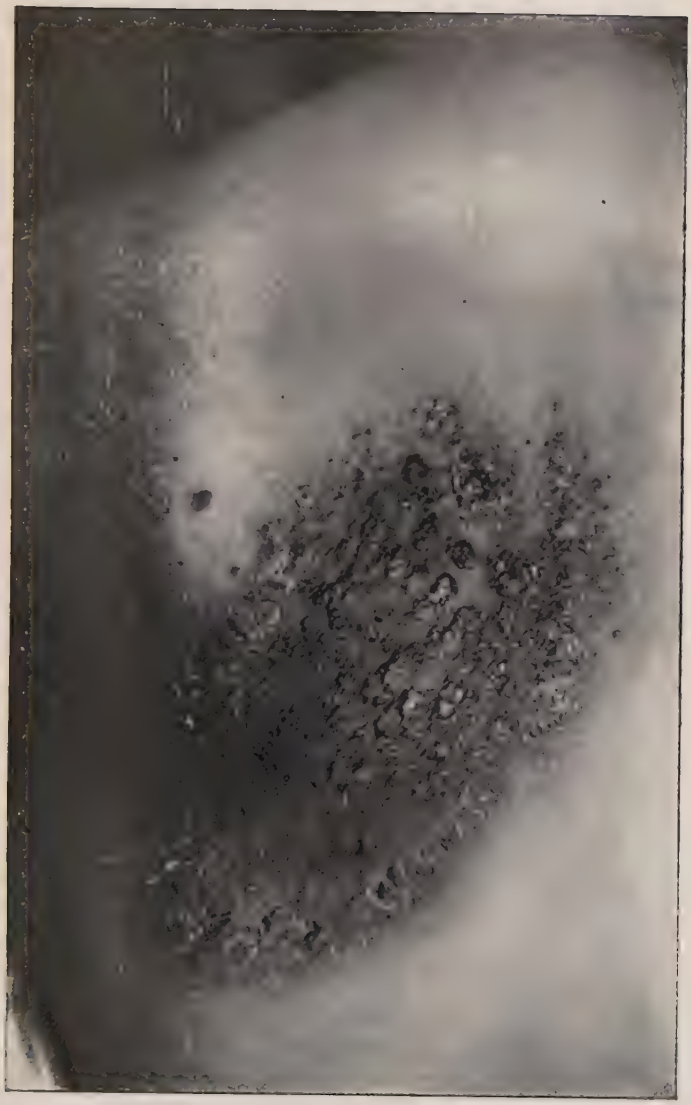
A rare but very characteristic form is that known as rupia. This eruption may come on early—*i.e.*, within the first year—or much later, when the evolution is somewhat different. In the early form the first lesion is a flaccid bulla, which rapidly dries into a scab. After this scab has been formed the bullous process extends centrifugally, and a second scab is formed

beneath the first. As the process continues there is produced a very thick conical scab, showing successive rings on its upper surface, and bearing a strong resemblance to a limpet shell. On detaching the scab a shallow ulcer is exposed, and after healing a fine papery scar is left. The later and deeper form is derived from the gumma by a somewhat unusual development of the scab.

The term ecthyma syphiliticum has been applied to any rather superficial ulcerating and crusting syphilide, and has no particular importance.

The other late syphilides consist of nodules of different sizes, which have the peculiarity of almost always softening and bursting when left untreated (gummata). Two forms of gumma are distinguished—the cutaneous and the subcutaneous. The cutaneous gumma is a lesion about the size of a pea situated in the true skin. It is almost always arranged in groups, and there may be only one or several patches. The small nodule reaches to the surface, liquefies in the centre, and bursts, leaving a small, punched-out ulcer, which becomes covered with a scab and finally heals. New lesions develop around the first, and so there is formed a ring of such nodules. As a rule, the process does not extend symmetrically in all directions, and the edge of the ring is broken by the intervention of healthy scar, thus producing a gyrate or serpiginous shape. As the disease progresses there is produced a central scar with a more or less wide border of actively ulcerating lesions around it, thus to a certain extent resembling lupus, but **the central scar, once formed, remains sound.** In most parts the deformity caused by this type is not great, though in some places, such as the nose and ears, complete destruction may occur.

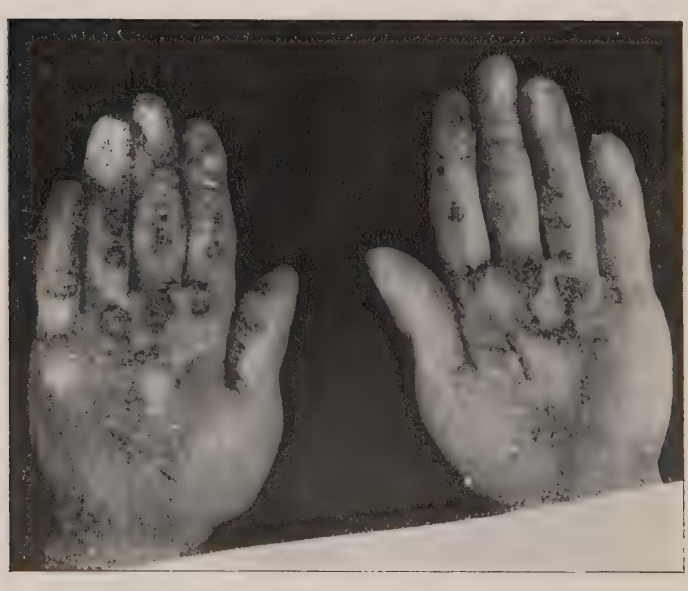
The subcutaneous gumma is situated in the fat, and, commencing as a small, pea-sized nodule, slowly enlarges to the size of a hazel-nut, or even a hen's egg. It then liquefies in the centre and, reaching the surface, bursts, and discharges a considerable amount of glairy fluid, leaving a large, deep ulcer with a sloughing base and steeply cut sides. This form is not usually grouped, though there may be two or three in more or less close proximity. It does not show the same serpiginous spread as the cutaneous type, but it has little or no tendency



NODULAR SYPHILIDE OF SHOULDER. (About five years after infection)



GUMMATOUS SYPHILIDE OF FOOT. (About twenty years after infection)



LATE SYPHILIDE OF PALMS WITH HYPERKERATOSIS. (Many years after infection)

to get well without treatment, and as it becomes septic a good deal of extension may occur. The reniform ulcer is formed either by the bursting of two gummata in close proximity, or by the arrest of the ulcerative process in one part with its extension in others.

Syphilis also affects the hair and nails as well as the general cutaneous surface.

The hair may be affected in one of four ways. First, there is often a marked general fall at the time that the generalisation of the poison is at its height. This is analogous to that occurring with any of the specific fevers, and has no particular characteristics. Secondly, when the early papular rash is profuse on the scalp, it is accompanied by a fall of hair over each papule, producing small areas of baldness, each about $\frac{1}{3}$ inch across. Thirdly, in very rare instances apparently syphilis may determine a symmetrical form of alopecia areata only distinguishable from the simple disease by its amenability to treatment. Lastly, scarring eruptions may, of course, obliterate the hair follicle.

The nails may be affected in three ways. First, a grooving of each nail may register the period of greatest disturbance of nutrition. This, again, is analogous to what occurs with other specific intoxications. Secondly, there may be a peculiar dystrophy confined to the matrix, so that the nail plate is deformed, rigid, and friable. As an instance I may mention the case of a young man who damaged a finger-nail, and this, instead of recovering, persisted as a disorganised nail for months, and was followed by a similar degeneration of all the others, though they had not been the subjects of any trauma. Thirdly, papules beneath the nail may loosen it, or papules at the side may give rise to a paronychia.

Congenital Syphilis.—As is well known, syphilis may be transmitted by the mother to the fœtus, and this may either cause the premature birth of a dead fœtus, or the birth of a dead fœtus at full term, or the birth of a living child with signs of syphilis already obvious, or the birth of an apparently healthy child who first develops the signs of the disease after birth. It is doubtful whether the father may transmit the disease to the child without first infecting the mother, but this question need not detain us.

The *symptoms* of congenital syphilis may be divided into early and late, as is the case with the acquired form, but, of course, the primary lesion is wanting. The early eruptions may be present at birth, but most commonly they develop within the first three weeks, though they may be delayed as long as six months. Cases are seen in which the initial rash is stated to have come out later than this, but strict inquiry and examination will elicit facts that prove either that there has been some previous eruption (very likely "the thrush has gone through him"), or the case is in reality one of acquired syphilis in infancy.

The erythematous (so-called) eruptions of congenital syphilis differ considerably from those of the acquired form. One of the commonest is a brownish rash scattered all over the trunk and extremities, with a peculiar brown sheet of eruption enveloping the nose and mouth. Although not obviously papular, there is evident, on careful examination, a slight amount of infiltration in the skin. The individual lesions vary much in size, but are mostly as large as, or larger than, a pea, and in many instances they run together to form large sheets. The intervening skin is usually harsh and dry, and the eruption itself is covered with fine papery scales, except where moisture has macerated these off, as in the diaper region, and here the eruption is irritated and of a bright raw-meat colour. The palms and soles are almost invariably affected. At the angles of the mouth and the anus there are to be seen moist papules (mucous tubercles), and occasionally condylomata are seen quite early.

The papular eruptions follow usually three types, all of them being fairly common. The first is much like the large papular syphilide of acquired syphilis; it is scattered over the whole surface, but has a special tendency to occur on the buttocks and to run down the legs to the feet. Owing to the moisture of these parts it is generally raw and eroded, and not infrequently the seat of superficial ulceration. The colour, where not irritated, is of a paler tint than that of the acquired form. The second type is a smaller papule of brighter red colour, and is extremely like the common papular folliculitis known as diaper rash. There is well-marked infiltration present, and it nearly always extends down to the calves and

up to the angles of the scapulæ. The palms and soles often escape in this form, and thus render the diagnosis more difficult. The third type consists of very large papules, ½ inch in diameter, raised above the surface, and often sunk in the centre so as to produce a more or less annular appearance. The rash is of a bluish colour, very much infiltrated, and it often looks vesicular at first sight, but closer examination will show that this appearance is misleading.

The bullous eruption is much more common in congenital than in acquired syphilis, but less so, I think, than is generally believed. It usually appears very early, and it is sometimes present at birth, and always denotes a severe infection. The rash almost invariably affects the palms and soles, and is often limited to them and their immediate neighbourhood. The bullæ are less tense than is usually the case with simple pemphigus neonatorum, and they do not rise so abruptly from healthy skin, the base being generally discoloured and often definitely infiltrated. The contents of the bullæ also are usually turbid, and not infrequently blood-stained.

The later eruptions are chiefly moist papules, condylomata, and gummata, but there is one special form which is certainly commoner in congenital than acquired syphilis. This occurs in fine concentric rings or parts of rings, chiefly round the mouth. The ring is made up of a narrow line of brownish-red infiltration, often carrying a fine desquamation. It is absolutely characteristic when once seen.

The Clinical Diagnosis of Syphilitic Eruptions.—Syphilis, as has been seen, produces a number of different forms of efflorescence, and these are, for the greater part, more or less imitations of simple eruptions. It is to be constantly borne in mind that, with the exception of the erythematous and pigmentary syphilides, all the syphilitic eruptions are characterised by the formation of collections of cells in the corium, and that these collections have a peculiar toughness, due to the fact that they are rather added to the previous tissue than substituted for it. A certain amount of loss of the original tissue elements does, of course, occur, as is shown by the atrophy left after some of the deeper forms, but this is comparatively slight, and it is wonderful how formidable

a syphilitic infiltration may be reabsorbed without leaving any permanent alteration in the skin.

All the early eruptions are, of course, usually associated with the other signs of florid syphilis—*e.g.*, adenitis, angina, erosions in the mouth—and these are of great help in the diagnosis of difficult cases. The roseola is particularly difficult to identify when existing by itself and without other symptoms. The points which serve to distinguish it are its site on the lower abdomen and the thighs, the bluish colour, the large size of the macule, and the peculiar blurred edge of the lesions. The large papular syphilide could only be mistaken for a papular erythema or perhaps a nodose acne. The localisation, chiefly on the trunk, the extreme density of the lesion, the brownish-red rather than scarlet colour, the almost constant multiformity of lesions, and, lastly, the complete absence of all subjective sensations in the rash, serve to distinguish it from the former, while a careful study of the mode of development and distribution renders it comparatively easy to differentiate from the latter.

Follicular syphilides may be confused with lichen scrofulosorum and with lichen planus of the follicular type. Lichen scrofulosorum is uncommon in adults, and is almost always associated with evident tuberculosis elsewhere; but in those cases occurring in adults previously the subjects of tubercular adenitis, in which the risk of contagion has been run, there is probably no possibility of making the diagnosis except by watching the case. Lichen planus of the follicular type is seldom so widespread, does not show the characteristic grouping, and the individual lesion is apt to be more horny and less infiltrated, and in places is almost sure to become confluent and form the characteristic hypertrophic patches.

The psoriasiform syphilide is distinguished from true psoriasis solely by its infiltrative characters, and I must confess that in certain instances I should have been unable to make the diagnosis had not some collateral evidence, such as the presence of ulcerative lesions, condylomata, etc., been present.

The cutaneous gumma may be confused with lupus. The chief diagnostic signs are the toughness and projection of the gumma, and the softness and flatness of lupus (of course,



SPIROCHŒTA PALLIDA. (From Condyloma of Axilla.) Preparation Stained by Leishmann's Method

gummata may be soft either because they have already liquefied or because they are disappearing under treatment); secondly, the scar after gummata is soft and white or pigmented, and, once formed, remains sound, while that of lupus is almost always somewhat thickened, and contains new nodules which keep cropping up. History shows that syphilis may make a progress in weeks or months equal to that of lupus in years. Subcutaneous gummata will be only confused with Bazin's disease or the scrofulo-cutaneous gumma. The former may be distinguished by symmetrical distribution at the back of the lower extremities, the type of patient, the possible presence of tuberculosis elsewhere, and, if necessary, the resistance to antisyphilitic treatment. The latter only occurs in young children, and there are almost always other signs. The tendency to heal in part and leave sinuses and irregular scarring in the tuberculide is also of assistance.

The Diagnosis of Syphilis by Means of Detection of the Spirochæta Pallida.—In the first edition of this book mention was made of the discovery of the Spirochæta pallida by Schaudinn, and the opinion was expressed that this organism might be looked upon as the probable, but not yet certain, cause of the disease.

With the passing of time we are, I think, now in a position which justifies us in saying that the Spirochæta pallida is certainly the cause of syphilis, though perhaps there is still some doubt whether the spirochæte is a stage in the development of the parasite or whether it is its invariable form.

The former alternative theory is held by some observers, and is obviously not unlikely to be true, but I have seen up to the present time no important evidence in its favour.

On the other hand, better methods of detection have resulted in more evidence in favour of the latter theory, since the spirochæte has been demonstrated frequently in those lesions—*e.g.*, gummata and late affections of the central nervous system—in which it could not be detected at first.

In the early lesions of syphilis it is more particularly easy to demonstrate the spirochæte, and this may be done by three methods—namely, the dark-ground illumination, the Indian ink method, and the staining methods.

It is especially in the case of a sore which may be a primary

inoculation of syphilis that the detection of the spirochæte is of value.

The organism is to be found within a very short time after infection and before any sign of blood change has taken place, and the finding of it pronounces the lesion to be syphilitic and calls for immediate and active treatment.

A word of caution may be given to all but the most expert as to the use of the demonstration of the spirochæte in establishing the diagnosis of syphilis. In the case of the ordinary dry skin no mistake is very liable to occur, but with moist surfaces, such as the glans penis, beneath the prepuce, the vagina, and perhaps more especially the buccal cavity, one must be on one's guard against mistaking other and somewhat similar spirochætes for the Spirochæta pallida.

The Diagnosis of Syphilis by Means of the Wassermann Reaction in the Blood.—This reaction, when carried out by a trustworthy expert, is of extreme value, but too much stress can hardly be laid on the skill and reliability of the performer of the test.

I urge this most strongly, because I have no doubt that at the present time there are a number of tests inadequately carried out, and such are not only useless and dangerous in the particular case from their affording false evidence, but are also likely to bring into disrepute this valuable addition to our means of diagnosis. The test is not one suitable to be performed by the ordinary clinician, skilled though he may be in general clinical pathology, but only by him who is specially trained in, and in constant practice of, the particular technique.

Secondly, although, as has been said, the test is of the utmost value when properly carried out, too much must not be asked of it. It is always to be remembered that although, with few exceptions, a positive reaction means the presence of syphilis in the particular patient, it means this and no more. It does not necessarily mean that the particular lesion is of syphilitic nature, but that the patient has at some time or other been infected with syphilis. Thus a latently syphilitic patient may suffer from eczema equally with any other patient. If the clinical knowledge of the observer is insufficient to enable him to recognise the eruption, and he relies too much on laboratory methods, he may have the blood tested, and receiving a

positive report, he may not content himself with saying, rightly, that the patient has syphilis, but may go further and say that the eczematous lesion is syphilitic.

Having dealt with the significance of the positive reaction, it remains to add a few remarks on the negative.

It is well known that in the earliest stages after infection the reaction is negative, though I think that with the more sensitive modern methods this negative period is shorter than is generally believed, and it is of no great importance, since in this stage the spirochæte may generally be found in the exudation from the sore.

Unless we are dealing with this short and early period of the disease, it becomes simply a question whether the Wassermann reaction is ever negative in the presence of an active syphilitic lesion.

In the first place, it must be understood that in the earlier stages of the disease the Wassermann reaction may be temporarily removed by treatment. In my experience, however, I can only recall one instance of a case in which the Wassermann reaction had been rendered negative by treatment when either a clinical symptom remained present or a fresh one developed.

My belief is that, as time goes on and the conduct of the examination becomes more and more accurate, the negative reaction in the presence of active syphilis (except, perhaps, in very late stages) will disappear, and I consider that we have already reached a point when it is fair to say that a negative reaction in all but the very earliest stages of the disease, and in the absence of treatment, is very strong presumptive evidence that neither the lesion nor the patient is syphilitic. To this statement, perhaps, ought to be added the remark that in late disease of the central nervous system, such as tabes dorsalis, the reaction may be negative in the blood.

Next, we may consider the influence of treatment upon the Wassermann reaction, and the value of the reaction as an index of the efficiency of treatment.

There is no doubt that with efficient treatment the reaction usually becomes negative, and this is more regularly the case in the early stages of the disease. Whether a persistently positive reaction which one is unable to remove by treatment is really an indication that the most careful treatment is still

failing to kill out the disease is still a matter of doubt, but as far as I can judge by the evidence at present accumulated I think that a positive reaction probably means persistent infection.

If treatment be dropped too soon after the reaction has become negative, it will return to the positive again after a variable period, and this return will very likely be followed by the appearance of clinical symptoms.

In the early stages of syphilis, therefore, it is, in my opinion, important to examine the blood from time to time in order to ascertain whether the form of treatment carried out has, first, produced a disappearance of the Wassermann reaction, and, secondly, is sufficient to maintain this negative state during the chronic phase of mild treatment.

It must be clearly understood that the abolition of the reaction by means of treatment is only a sign that the treatment is efficient so far, and is not to be regarded as a sign that the disease is eradicated.

Only when the reaction remains negative for a long period in the absence of all treatment should the patient be presumed to be cured, and even in this case, as we have very little real knowledge of the length of the period, examination should be made from time to time.

In the later stages of syphilis, and especially in congenital cases, it is usually much more difficult, and may be apparently impossible, to render the Wassermann reaction negative, and the question arises as to the significance of a persistent positive.

My position is this—namely, that to leave the patient with a positive reaction is regrettable, and it should only be done in those cases where so much and so powerful treatment has been administered that it becomes a choice between the certain deterioration of the health of the patient by prolonged treatment and the leaving him to his risk. In such cases I think the risk is, after all, perhaps not so very great, though I have no doubt that the position of a patient with a persistent positive reaction is not so good as that of one with a persistent negative.

It is necessary to make this statement in spite of its apparent obviousness, because some observers still maintain that a positive Wassermann reaction may be a sign of past and eradicated syphilis as well as of present but latent disease.

Next, we may consider the Wassermann reaction in the cerebro-spinal fluid.

In spite of numerous statements to the contrary, I am convinced that the withdrawal of cerebro-spinal fluid by lumbar puncture is not always a procedure which is borne by the patient without discomfort. Severe headache and malaise are frequent even in patients who are laid up in bed before and after the puncture. Nevertheless, these uncomfortable symptoms should not be sufficient to influence us if we believe that valuable information is afforded by examining the fluid.

There is, I think, no doubt that valuable information is afforded, but this falls under two headings. First, apart from the determination of the percentage of cases of syphilis affecting the fluid in the early stages, there is the question of the modification of the treatment by the results of the examination of the cerebro-spinal fluid; and, secondly, there is the use of the examination of the fluid for the diagnosis of obscure symptoms. As this second point falls outside the range of a treatise on skin diseases, it will be dismissed with no further notice beyond remarking that the evidence afforded seems to be absolutely trustworthy.

The first question needs further consideration. Practically it amounts to this: How are we going to modify our treatment of an early case in the presence of a positive reaction in the cerebro-spinal fluid ?

It must be presumed that the only case in which modification will be necessary is that in which the blood has become negative and the cerebro-spinal fluid remains positive, since, if the blood remains positive, further energetic measures are certainly demanded.

But if only the fluid be positive, the position is rather difficult. It is, I think, generally believed that the arsenical compounds do not reach the cerebro-spinal fluid from the blood, and that mercury does so only with difficulty. We are then brought to the conclusion that if our treatment is to be influenced in the earlier stages of the disease it must be by the method of intrathecal injection, and I imagine that few would recommend this rather uncertain method in early syphilis without central nervous symptoms solely on the presence of a positive Wassermann.

If this be so, then the treatment is not to be modified in early cases, and the examination of the fluid has prognostic and academic value only.

On the other hand, at the end of treatment, when we are going to dismiss the patient as probably cured, the position is different, because here we are desirous of being able to give him a clean bill of health.

It therefore, in my opinion, comes to this: that the early examination and repeated watching of the cerebro-spinal fluid in the treatment of syphilis offers an unnecessary discomfort to the patient, but before the patient is dismissed as in all probability cured the cerebro-spinal fluid should be examined, and this will mean that the first examination, and it is to be hoped the only one, will be at the end of the year after cessation of all treatment.

Pathology and Anatomy.—As already mentioned, the Spirochæta pallida may be, in my opinion, regarded as proved to be the parasite causing syphilis.

The *anatomy* of syphilis, although it manifests itself in such numerous forms, is in reality comparatively simple. The chief features of syphilitic inflammation are the aggregation of small lymphoid and plasma cells, beginning round the smaller vessels and gradually spreading to form large accumulations. The original fibrous and elastic tissues of the regions affected are enormously distended and disturbed, but there is, except in the case of gummata, an absence of that complete atrophy and disappearance of the original tissues so characteristic of tuberculosis. Consequently, as has already been pointed out, considerable masses of syphilitic infiltration may arise and disappear without producing much permanent deformity of the tissues. Another general feature of syphilitic infiltration is the energetic proliferation of the ordinary connective-tissue cell, and this is especially remarkable in the primary sore. It is unnecessary to enter into minute details of the *histology* of the various lesions, but some few remarks may be useful. Having studied practically every lesion but the pigmentary syphilide, I may express my experience as follows:

The primary sore always shows under the microscope an extraordinarily dense infiltration, and close examination shows that it is in reality arranged in circles around the smaller veins,



SECTION OF AN EARLY SYPHILITIC PAPULE SHOWING THE MASSIVE CELLULAR INFILTRATION. X 300

and possibly the lymphatics. Most of the cells making up the infiltration are small lymphoid cells, but there are also many branched connective-tissue cells with unusually large bodies. The horny layer alone may be lost, or the entire epidermis may be destroyed in the ulcerative lesions. In the latter event there is a much greater proportion of polynuclear leucocytes, due, no doubt, to the sepsis. In the roseolous rash the microscope shows that there is already a perfectly definite sleeve of small plasma cells around the small vessels, but otherwise there is no material disturbance. In the papular forms there is an accumulation of cells in which the proportion of large plasma cells is much greater than in the primary sclerosis. The tissues are pressed apart, and there is a fairly large area in the centre of the lesion, in which but little fibrous and elastic tissue can be seen, but what there is seems to be reduced to fine fibrils rather than cut off into necrotic blocks, as is the case in lupus. The epidermis is stretched out and thinned, and the interpapillary processes have disappeared. Not infrequently a microscopic, subepidermic vesicle is visible. The horny layer is usually incomplete and scaling. In the follicular lesions, in addition to these features, there is a fairly large number of giant cells present, so that the lesion may closely resemble that of lupus. No attention need be paid to this giant-cell formation, as it appears to be a rule of the skin that, where deep inflammation of the appendages occurs, giant cells usually develop.

The condyloma is a very characteristic lesion. The epidermis is at the same time enormously hypertrophied and atrophied in different parts. Thus the interpapillary processes descend into the corium much farther than normal, and are often branched, while between these the epidermis is very thin or absent. The vessels are much dilated and new capillary formation is well seen, and the whole of the corium is packed with large plasma cells arranged in rows around the vessels. Among them are very numerous polynuclear leucocytes, owing to the extreme sepsis of the lesion.

Gummatous lesions show the ordinary syphilitic infiltration with certain special peculiarities. First, there is always a much greater attempt at the formation of a fibrous wall around the lesion. Secondly, the centre is completely degenerated,

and shows a granular material with nuclear fragments scattered through it, and all signs of the original tissues have disappeared. Thirdly, in all gummatous processes the infiltration of the media and intima of the vessel wall is much more marked than in the early lesions. I should be inclined to differ from those who regard endarteritis as the most characteristic syphilitic change, and rather look upon the intense infiltration of the adventitia and media as more striking, and especially the hypertrophy of the elastin in the walls of the larger vessels.

Treatment.—With the advent of the newer methods of diagnosing syphilis—namely, the detection of the Spirochæta pallida and the Wassermann reaction—we are in a position to diagnose syphilis accurately far earlier than before, and treatment should be begun as soon as the diagnosis has been established.

In my opinion, the aim of treatment should be to remove clinical symptoms and to establish and maintain a permanently negative Wassermann reaction in the patient, since this reaction seems at present to be the most delicate indication of the constitutional infection, and is commonly present when no other symptom of the disease can be found.

Next, as to the method of treatment and the drugs to be used.

1. The ordinary case of early infection.

With the introduction of salvarsan and its derivative, neosalvarsan, or their substitutes, the treatment of syphilis has been materially modified.

The plan I adopt is as follows:

The patient is thoroughly examined to determine the state of his organs, especially that of the kidney. If there is no evidence of organic disease, he is given as soon as possible an intravenous injection of neosalvarsan or one of the identical products sold under another name.

It is my practice to inject the full dose of 0·9 gramme to every adult patient in otherwise good health, taking no notice of the sex. I am aware that this is different from the method advocated by many, but as I have never yet seen a menacing symptom produced by it I see no objection to it. If there is any danger of establishing a refractoriness of the spirochæta to the arsenic compounds, this danger is much more likely to be

avoided by the use of high doses at long intervals than by frequent small doses.

Willcox has shown that the excretion of the arsenic is nearly complete at the end of three weeks, and this interval is the one which I place between the first and second injections. Three days after the first injection, when the first critical excretion of arsenic is over, the patient is placed upon mercurial treatment, which is continued up to two days before the second injection.

The second injection, three weeks after the first, is of the same dose, unless any evidence is present that the first dose is too high, and is followed, as before, by an interval of three weeks, during which time the patient returns to mercurial treatment.

At the end of this second interval a third dose of the same amount is injected, and the patient returned after three days to mercury again.

After an interval of three weeks from the third injection a Wassermann test is performed, and if, as is usually the case, it is found absolutely negative no more salvarsan is injected.

The patient is then left on a moderate dose of mercury (hydrarg. c. creta, gr. i. t.d.s.) for one year, with a possible holiday of a fortnight if any discomfort is incurred.

At the end of the first six months of this year a Wassermann test is taken in order to ascertain whether the treatment is efficient in maintaining the negative state. If, as is nearly always the case, the reaction is found to be negative, the mercury is merely maintained until the end of the year, when a further test is done.

If at either of these two examinations the Wassermann reaction shows signs of becoming positive, a further course of three injections of salvarsan is given as before, but it is only quite exceptionally that this has happened in my series of cases.

At the end of the year of treatment, if the Wassermann test is negative, all treatment is stopped and the blood is examined at three monthly intervals, and if it remains *clearly* negative a year after treatment has been stopped the patient is dismissed as cured, but advised to have the blood tested from time to time as a safeguard. It is at this time that I think it well to have the cerebro-spinal fluid tested as well.

In relying upon the Wassermann reaction to this degree it may cause surprise to some that I have made no mention of other clinical symptoms, but the reason is that, since the blood test has arrived at such great accuracy as at present, I have hardly ever seen a clinical symptom supervene without the blood's showing a positive reaction in some degree.

Apparently a slight change in the blood is an almost invariable precursor of clinical symptoms of relapse, and one must remember that in a case of syphilis in which the blood has ever been reduced to a negative, a degree of complement deviation which would be too slight to make the diagnosis in a case without previous clinical and pathological history is good evidence of coming relapse in the earlier years of infection.

Such is my routine treatment of syphilis in the ordinary uncomplicated early case.

Certain points remain to be dealt with—namely, the method of introducing the drugs and the treatment of special or resistant cases.

First, as to the method of introducing the arsenobenzol compound. The form I use is identical with the proprietary neosalvarsan, and almost without exception I give it intravenously dissolved in 10 c.c. of sterile specially distilled water. Only in the rarest cases is there difficulty in introducing the needle into a vein if one's technique is good. I have, however, come across two cases, both females, in which there was no vein to be seen or felt in either the arm or the leg. In such cases one may use either the intramuscular injection of the neosalvarsan dissolved in a 50 per cent. solution of glucose with guaiacol, or one may inject the ordinary watery solution into the rectum. I have tried both the intramuscular and the intrarectal injections, and find both fairly efficient, but neither comparable to the intravenous. On the whole, I incline to the view that as between the intramuscular and intrarectal the former is the more efficient, though it is distinctly painful.

Next as regards mercury. We need consider now only three methods—namely, the oral, the inunction, and the intramuscular methods.

Taking the inunction method first, I may state my belief that if this is properly carried out by a skilled rubber it still

remains the most certain and powerful method of administering mercury. It must, however, be clearly understood that in advocating it I do not mean to suggest short courses of thirty rubbings with long intervals without treatment, but the systematic continuation of small inunctions throughout the year. When one considers the enormous trouble and expense of this method, and also its other disadvantages—namely, the occurrence of dermatitis—one is forced to admit that for the routine case the disadvantages outweigh the advantages. If the method is to be used, it had better be carried out under the supervision of an expert skilled in the Aachen technique.

Secondly, by oral administration. Here it is only necessary, in my opinion, to deal with two forms—namely, grey powder and the yellow **mercurous** iodide. The former is given in doses of 1 grain three times a day, and the latter in doses of $\frac{1}{8}$ grain, and the best times to take the doses appear to me to be at eleven o'clock, four o'clock, and at bedtime—that is, as much as possible between, and not immediately after, meals, as being much less likely to cause diarrhœa. It is to be remembered that with the preliminary treatment with the arsenic compound much less high doses of mercury are necessary than were needful when one had to use mercury to cause the disappearance of the symptoms.

The disadvantages claimed against the oral method are two—namely, that the patient may neglect to take the drug regularly, and that it upsets the digestion. The former objection carries no weight with me, since, putting aside the army and navy, and such exceptional organisations, where one has one's patient under absolute command, it is at least as likely that the patient will fail to present himself for injection as that he will fail to take the dose.

The digestive objection has more force, but it is, in my experience, only in the rarest cases that a patient cannot take either the grey powder or the mercurous iodide without the slightest discomfort. Where necessary, a grain of Dover's powder, as recommended by Hutchinson, can be added, but I find it rarely necessary.

As to the intramuscular method, this has, I think, practically been narrowed down now to the injection of insoluble preparations containing either mercury simply extinguished in the emul-

sion, calomel, or salicylate of mercury. The last appears to be the least efficient and the most dangerous.

It is claimed in favour of the intramuscular method that it is the most efficient, that it does not disturb the digestion, and that one knows precisely how much mercury the patient receives.

The first claim will be dealt with later, and, as regards the second, this is certainly true, but as in my experience the oral administration also very rarely upsets the digestion, it does not carry much weight. The third claim is, in my opinion, entirely fallacious.

It is true that one knows that so much mercury is put into the gluteus, but one has no knowledge of the rate of absorption beyond that one knows that it is variable. If "mercurial stasis" occurs in the muscle, the patient may get sudden absorption of an overdose later, whereas by the oral method mercury not absorbed is passed out, and there is no danger of the simultaneous absorption of more than one dose. Nevertheless, I think it may be fairly claimed that with due precautions the method of intramuscular injection is reasonably safe.

The further question of the relative efficiency of the oral and intramuscular methods requires a few words. With the introduction of the Wassermann reaction a new indication of the efficiency of treatment was placed at our disposal, and large numbers of my old cases, treated years before, have been examined by this means. The result has been to convince me that the oral treatment of syphilis by means of grey powder is in routine cases the most efficient method, judging by the Wassermann standard, and I am permitted by Dr. Emery, the pathologist who has conducted all the examinations for me, to say that these results, combined with those obtained by him later on in a long series of cases, have led him to form the same opinion.

Before the introduction of the new arsenobenzol compounds I had repeated opportunity to observe the failure of grey powder to remove or prevent the recurrence of symptoms in late and obstinate cases, and such cases were treated either by inunction or by intramuscular injection, or both, and though I can recall cases where the inunction method succeeded after

failure with grey powder, I have no record of a case in which intramuscular injection of either calomel or mercurial cream succeeded after either of the other two methods had failed.

For the routine treatment of early syphilis I therefore recommend the three injections of full doses of novarsenobenzol accompanied by a year's ingestion of grey powder.

2. There still remains to be dealt with the refractory case, either early or late. In such cases I advise that the arsenical injection be repeated at the three weeks' interval if possible until the Wassermann reaction becomes negative. In cases where one has to give a long series of arsenical injections it is important to examine the urine repeatedly, as it is apparently in damage to the kidney that the danger lies. Also I think it probably safer to extend the interval between the injections from three weeks to six, as I have found that even with the usual three injections the third may cause more disturbance of health than the first two.

The question as to how many injections one must give in the absence of clinical symptoms before giving up the attempt to turn the Wassermann reaction from positive to negative is one which we cannot really answer at present, owing to insufficient evidence, but I should be inclined, after giving twelve, to put the patient through a prolonged course of mercury by inunction at the hands of an expert.

Luckily these cases are so rare that I have very little experience on the subject.

In the other type of resistant syphilis, where the Wassermann reaction is brought to a negative and kept at this by the ordinary routine treatment with mercury by the mouth for a year, and then becomes positive later, it has been my experience that a simple repetition of the original cycle of treatment fulfils all requirements.

So far only the constitutional treatment by mercury and arsenical compounds has been dealt with, and the question may be asked as to the necessity for the use of local treatment by mercury and constitutional by iodide of potassium.

As to the former, it will be not uncommonly found that late lesions of the tongue yield more readily to treatment when the local application of liq. hydrargyri nitratis acidum is added to the constitutional treatment, and undoubtedly the dusting

over of condylomata with calomel and starch (1 in 3) hastens their disappearance. Beyond this I think the local treatment with mercury can be dispensed with, since the newer remedies have been placed in our hands.

The necessity for the use of iodide has also largely disappeared, but it must be remembered that there are cases, such as those with renal disease or pronounced cardiac weakness, in which the arsenical compounds would be too dangerous to use. In such cases, and possibly also those with acute cerebral disease, high doses of potassium iodide (20 to 30 grains three times a day) would still find their use.

In congenital syphilis in infants very small doses of the arsenical remedies may be given either by rectal injection or by Emery's plan of injecting through the fontanelle into the longitudinal sinus. This should be followed, as in the adult, by a prolonged course of mercury, and here again I find that grey powder ($\frac{1}{2}$ grain twice a day) is usually well borne.

The older belief that the injection of the nursing mother with salvarsan benefited the sucking infant seems to rest on no firm foundation, but if the mother is taking mercury care must be taken in the administration of the same drug to the infant to see that it does not get an overdose.

CHAPTER XVI

LEPROSY—YAWS—GLANDERS—ACTINOMYCOSIS—MYCETOMA—BLASTOMYCOSIS—ORIENTAL SORE

Leprosy.

Leprosy is an inflammatory disease of intensely chronic nature caused by the Bacillus lepræ. The disease is no longer active in this country, but owing to the enormous latent period which may exist before the onset of symptoms, cases may apparently develop here. The questions of contagion and mode of spread are still unanswered, but the following explanations are offered: First may be mentioned the theory that the disease results from the eating of decomposing fish. This theory is not widely held, and is combated by most of those whose experience of the disease is great, whereas the supporters of the fish doctrine have to make what appears to me to be unwarrantable assumptions in order to fit the facts with their theory. Secondly, there is the theory of direct contagion. There is no obvious difficulty in accepting this, beyond the facts that experimental evidence is not conclusive and that the disease is not apparently contagious when the patients are removed to a country where it is not endemic. The fact that almost all patients with leprosy appear to be affected with a nasal discharge containing bacilli offers an easy explanation of the way in which the organism is spread, if we once grant the possibility of direct contagion. Thirdly, there is the theory of mediate infection by means of some other animal, and this seems to fit in best with the knowledge at our command, the black rat being regarded by some as the culprit.

The period of incubation, or at least of latency, may be, as already stated, of immense length, and several years commonly elapse after leaving the disease area before symptoms show themselves. According to the situation of the main infection, two sets of symptoms may be produced, caused by the affection

of the skin or the nerves respectively, and in some cases both sets may co-exist.

Symptoms.—The tubercular or, better, nodular form is characterised by inflammatory nodules in the corium containing enormous masses of the Bacillus lepræ. The skin lesions are, first, large and small nodes of a brownish-red colour; secondly, atrophy resulting from pressure; and, thirdly, ulceration. The nodules nearly always appear most profusely on the face and extremities, and are said to be left after recurrent attacks of fever and erythema. It is probable, however, that even this early erythema is in reality infiltrative in character. On the face, the forehead and the eyebrows are the earliest to show the deformity. The infiltration increases the depth of the natural horizontal creases of the forehead, and causes a vertical crease in the eyebrow with subsequent loss of hair. Both of these signs are absolutely diagnostic, and as they become more marked the characteristic frowning expression develops, which has been called the facies leonina. Examination of the sensation of the affected areas shows that it is diminished, and the patients are apt to complain of a chronic burning in the extremities, and this is, I believe, a very characteristic symptom. As time goes on, some of these leprous nodes—or lepromata, as they are called—resolve and leave atrophic marks, while others soften and ulcerate. On the occurrence of ulceration, unless great care is taken, pronounced sepsis is added, and loss of fingers or even of limbs results. Almost all tubercular cases which last any time become attacked in their nerves as well, giving rise to the so-called mixed form.

In the anæsthetic form, the brunt of the attack falls on the large nerve trunks, and these become the seat of nodules and thickening, at first accompanied by a good deal of pain. As time goes on, the nerves become degenerated and less sensitive, and all dependent structures suffer; thus, the muscles undergo atrophy, the skin becomes anæsthetic, and perforating ulcers occur. In addition to this, a peculiar form of dusky, infiltrative, circinate erythema makes its appearance from time to time on various parts. Within the erythematous ring the sensation is always dulled or lost, and the skin has a peculiar atrophic look. After the disappearance of the erythema, pigmentation is often left for long periods. Bullæ not infrequently form on



GROUP OF LEPROSY BACILLI AND A LARGE MONONUCLEAR LEUCOCYTE
(Extempore Preparation from a Suspicious Patch on the forearm.) X 1200

the areas of damaged nerve supply (pemphigus leprosus), but these appear to be in reality secondary nerve lesions rather than directly due to the bacillus.

The *diagnosis* of both forms of leprosy depends chiefly on a careful examination of any patient coming from an infected region, but the presence of marked burning sensation without itching, occurring either continuously or in attacks, is very suspicious. In any case in which there is the slightest brown discoloration or thickening the diagnosis may be made at once by the clinical pathological examination. A case occurred in my clinic in which the patient, a Columbian woman, had been in England for two years, and had only complained of burning for a few months. On scratching what looked like a persistent wheal, and staining the exudation with carbol fuchsin, a typical slide of leprosy bacilli was obtained. Of course, in every case the sensation should be carefully examined.

The *prognosis* of all cases is very bad unless they can leave the infected region, but many instances of arrest are known where the patient has been able to change his residence to a country where leprosy is not endemic. The duration of the disease is from two to twenty years, most cases dying within ten years of tuberculosis, sepsis, or cachexia.

The *treatment* is very unsatisfactory at present, except in the way of prophylaxis by segregation. Gurjun oil and chaulmoogra oil rubbed in and taken by the mouth (beginning with 10 minims three times a day and increasing to the limit of toleration) do some good. More recently great improvement has been claimed after the injection of sodium gynocardate, a derivative of chaulmoogra oil. Crocker has had some improvement with the injection of mercury, and Diesing claims a somewhat striking success with the injection of iodoform emulsion (30 per cent.) in olive oil, giving 6 to 8 c.c. a day.

Yaws.

Yaws, or frambœsia, is a tropical contagious disease somewhat resembling syphilis. As no case has, so far as I am aware, been seen in this country, only the shortest notice is necessary.

Symptoms.—The disease usually manifests itself in from two to ten weeks after inoculation, and the first lesion is an indolent, but not especially indurated, papule at the site of inoculation. Some fever and muscular pains now appear, and the skin generally becomes first harsh, and then the seat of an eruption of deep papules, which on coming to the surface become scaly. Later, crusting of the papules occurs, and where they are situated in moist parts, an overgrowth resembling that of condyloma develops. It is doubtful how far bone and other internal affections appear, as the disease has certainly been confused with syphilis.

The question of the identity of yaws with syphilis may now be regarded as answered in the negative. Castellani has demonstrated in yaws a spirochæte (Spirochæta pertenuis) which, while resembling S. pallida, is distinguishable from it.

Treatment.—The treatment of yaws would now appear to be very successful. A course of one of the arsenobenzol preparations should be given. This is followed by disappearance of all symptoms, and relapse is uncommon. Apparently the disease is much more easily curable than syphilis by this method.

Glanders.

Glanders, or, as it is sometimes called in its more chronic form, farcy, is a virulent disease acquired from horses, and is due to the invasion of the body by the Bacillus mallei.

Symptoms.—The inoculation sore of glanders somewhat resembles that of syphilis, but is usually much larger and much more necrotic. It is typically an ulcer, and has heavy rolled edges with a sloughy and profuse discharge. When constitutional infection occurs, multiple abscesses may form beneath the skin and also numerous granulomatous nodules (farcy buds) may appear on the surface. On the summits of these bullæ may develop, and the disease has been mistaken for pemphigus; but the error should not be made, as the base of the bulla is always infiltrated and the patient is extremely ill.

If seen early, when only the inoculation sore is present, the discharge should be inoculated into a guinea-pig for diagnostic purposes, and the lesion excised or destroyed with the actual cautery. Multiple lesions from constitutional infection can

only be treated on general surgical principles. The generalised disease is usually fatal, though patients occasionally recover from the more chronic forms.

Actinomycosis.

Actinomycosis is a chronic suppurative granuloma due to the growth of some form of streptothrix. In all probability there are many related forms of parasites responsible for the lesion known clinically by the name.

The disease may occur either as a primary inoculation into the skin, or, far more commonly, as a secondary invasion from some deeper structure.

In both classes the symptoms are the same—namely, a brawny, diffuse, purplish infiltration with numerous suppurating points, which are the opening of sinuses. From these a rather thin and mucoid pus exudes, and in this are found little yellowish bodies the size of pins' heads. These bodies, examined microscopically, show themselves to be small colonies of the fungus, and appears as a dense feltwork of Gram-staining mycelium (the ray fungus), clubs not usually being seen in man. The method of inoculation is said to be the chewing of straws, and the fungus may either grow into a carious tooth or be swallowed and spread from the alimentary tract.

The treatment may be partially surgical in the way of ablation or incision and syringing out, but in every case large doses of iodide of potassium should be given (gr. xv. to ʒi. three times a day). This seems to have a direct action in destroying the fungus, and in cases in which sepsis is not a marked feature may be sufficient alone to cause complete resolution.

The use of the X rays and radium has been also of great benefit in causing or hastening the disappearance of the infiltrations.

Mycetoma (Madura Foot).

This is a somewhat widespread disease, chiefly occurring in the tropics, and more especially in Madura, from which the second name is derived.

The *symptoms* consist of the development on the skin of the leg of an infiltrated patch of variable, but usually purplish, colour; suppuration at one or more points, with the discharge of a peculiar fluid; and, finally, enormous swellings and complete disintegration of the part. The discharge is purulent in nature, but contains small bodies which have been likened to "fish roe," and are in reality small masses of mycelium belonging to the streptothrix class. The mycelium may be pale greyish-yellow, black, or even red, and the disease has been divided into varieties according to the colour of the bodies.

The *treatment* consists of free removal of the diseased parts, and, where the case is extensive, of amputation of the leg. Iodide of potassium seems to be useless in this affection.

Blastomycosis.

This is a disease which has been chiefly observed in America, no undoubted case having been found in this country.

The early symptom seems to be an infiltrated papule, which softens, bursts, and leaves an ulcer. Epidermic hypertrophy then occurs around and in the base of the ulcer, and as the disease spreads a lurid red, infiltrated patch with papillomatous excrescences and many points of suppuration is formed. The aspect is then not unlike that of tuberculosis verrucosa cutis, but multiple superficial abscess seems to be a much more marked feature in blastomycosis. Examination of the pus reveals characteristic round bodies with clear contents and a highly refracting envelope. The bodies are variable in size, and of about twice to four times the diameter of a lymphocyte, as seen in sections, while some of them may show budding forms.

As the disease is auto-inoculable, the lesions are frequently multiple, and the exposed parts are those most commonly attacked. This form of the disease causes extensive cutaneous deformity, but appears to have little effect on the general health. An allied form, however, sometimes known as "protozoic dermatitis," in which sporulating organisms are found, is frequently fatal from infection of the internal organs. In the blastomycetic form large doses of iodide of potassium seem



Baghdad Boil (Nodular Stage)



Baghdad Boil (Ulcerative Stage)

PLATE XXIII

to be very effective, but should, of course, be combined with appropriate surgical procedure. No treatment has been at present of any avail in the "protozoic" form.

Oriental Sore (Dermal Leishmaniasis).

Synonyms.—Delhi boil, Aleppo evil, Biskra boil, Baghdad boil, and many others.

This is a local inflammatory disease due to the intra-dermic inoculation of Leishmania tropica.

The disease is auto-inoculable and contagious, but is believed to be most frequently conveyed by insects, of which the sand-fly is suspected to be the commonest agent.

Since the war a considerable number of cases have been seen in this country owing to the Mesopotamian campaign, and it is therefore deemed worthy of a short notice.

The incubation period is variable, but in a case of mine with three lesions, one had developed at least six months after the patient's return to England.

The early lesion is a brownish nodule of moderately firm consistence embedded in the corium. On pressure there is left a slight translucency of a pale buff tint, somewhat resembling, but much less marked than, that found in lupus. After a time new nodules form in close proximity to the first, so that a small group is formed of somewhat acuminate lesions, each about $\frac{1}{16}$ inch in diameter.

As a further development there occurs over the surface of the affected area a fine, papery scaling.

The lesion may then either go on enlarging both in surface, extension, and depth, so that a large tumefaction is formed somewhat resembling a very chronic boil, or it may ulcerate early, producing a circular loss of substance with tough edges and base, almost dry and nearly painless. This ulcer may then become covered with a scab.

The lesions are for the greater part situated on the exposed parts of the body, and in the patient already alluded to they lay on the right side of the face, the back of the right hand, and the extensor surface of the left forearm. Ill-defined attacks of fever appear to precede and to accompany the eruption in some cases.

After progressing slowly for some months the lesions resolve and heal, most cases recovering in about a year. One attack appears to convey protection against further infection.

The *diagnosis* rests on the history of the patient's having been in a locality where the disease occurs, on the above described clinical features, and on the demonstration of the parasite. This last may be easy or very difficult according to the age of the lesion, and prolonged search may be necessary.

Treatment seems to be in a somewhat uncertain state. Many local antiseptics have been used with variable success, but perchloride of mercury seems to have the greatest number of supporters. Freezing with carbonic acid snow is occasionally of advantage.

As regards the salvarsan group there is great doubt. Some of the best observers hold it to be useless, while others regard it favourably. In my patient there seemed to be some favourable effect from novarsenobillon, but it was not very striking.

Castellani states that intravenous injection of tartar emetic is specific. He gives 5 to 10 c.c. of a 1 per cent. saline or watery solution intravenously daily for five to ten days, and then every other day or twice a week until fifteen to thirty injections have been given. The treatment should be carried out cautiously, as it is not completely free from risk.

CHAPTER XVII

TUMOURS

The tumours of the skin may be divided into (1) those chiefly affecting the epidermis and its appendages—epithelial tumours; (2) those chiefly affecting the corium—connective-tissue tumours; and (3) mixed tumours, in which both portions of the skin are more or less equally affected.

1. The Epithelial Tumours.

These may be benign or malignant.

(*a*) Benign Tumours.

Verruca or Wart — *Symptoms.*—Two forms of warts are found on the skin, the flat wart and the filiform or fungiform wart (condyloma acuminatum), both forms often co-existing. The flat wart begins as a barely perceptible roughness of the surface, which is liable to catch the dirt, and therefore is often of a brownish or greyish colour. Close examination shows the surface to be finely rugose, due to irregular overgrowth of horny epithelium. As the tumour progresses in size it begins to stand well up above the surface, having steep margins and arising from perfectly normal skin. The tumour may grow to the size of a pea or even larger, and two or three often appear close together and coalesce to form a warty patch; but there is never any undermining of the skin by the tumour, nor is there any thickening around the base such as is found in malignant growths and warty tuberculosis. The commonest situations are the face, the hands, and the feet, and in the last-mentioned situation the pressure of the boot may cause them to be driven into the skin and so lead to confusion with corns, but close examination will always reveal the enlarged papillæ from which they grow.

Filiform and fungiform warts differ from the flat variety in the much greater overgrowth of individual papillæ, so that the tumour is more succulent and shows one or more finger-like projections capped with horny layer, while in some instances the growths are constricted at the base so as to form pedunculated tumours. The commonest sites for such tumours are the genitals (gonorrhœal warts), the face, and the scalp, and the face often shows these acuminate warts associated with the plane variety on the hands.

In addition to these forms may be mentioned the flat brown or black warts found on the face, trunk, and limbs, to which the names verruca senilis and verruca seborrhœica have been given. The growths may be mistaken at first sight for patches of mere pigment, but on close examination it is found that they are very slightly elevated flat warts, and scraping will bring away friable horny material. They are certainly commoner in old people, but they do occur in young patients with greasy skins. They may undergo a malignant transformation in later life.

The *pathology* of all these tumours is unknown, but some are undoubtedly contagious, especially the genital type, and there is a low degree of infectiveness in all.

Microscopically they are seen to consist of enlarged papillæ over which the epithelium and horny layer are hypertrophied. The degree of papillary enlargement and vascularity, and the resulting degree of overgrowth of the mucous and horny layers of the epidermis, determine the variety of the wart, flat or acuminate.

Treatment.—Occasionally the ingestion of magnesium sulphate in doses sufficient to cause several loose motions a day will be followed by the disappearance of all the warts in about six weeks' time. The treatment is uncertain and inconvenient, and for these reasons I do not use it.

More usually local treatment alone is employed. This may take the form of a daily painting with salicylic collodion (10 per cent.), or with glacial acetic acid, or with a 1 in 1,000 solution of biniodide of mercury in 70 per cent. spirit. For small flat warts, where very numerous, as often seen in children, I regard this last as a most valuable method, and it is quite free from risk.

Sometimes one meets with cases in adults where a single wart on the scalp is suddenly followed by the appearance of innumerable small warts all over the head. I have found that in most cases these will disappear after about a month if the scalp is daily rubbed with—

℞	Acid. salicylic.	ʒss.
	Acid. benzoic.	ʒss.
	Paraffini mollis	ʒii.
	Ol. cocois nucis	ad ʒi.

Other satisfactory methods for simple warts are treatment by means of the electrolytic needle, touching with the diathermic point, fulguration with the high-frequency brush, destroying with the galvano-cautery, or freezing with carbonic acid snow.

As regards the latter, there is a practical point worthy of mention. Where the wart is large and prominent, the mass of horny layer is often so thick that it is impossible in the ordinary way to obtain the necessary low temperature in the deeper part of the wart, however long the pencil of snow is kept in contact with the surface. Dr. Verling-Brown of Sutton pointed out to me that this difficulty could be satisfactorily overcome by macerating the affected area with a boric acid fomentation for some hours before applying the snow. If this is done, the freezing penetrates the macerated tissue very rapidly, and in almost all cases one minute will be sufficient for the application.

Clavus or Corn.—A corn is a local hypertrophy of the epidermis due to intermittent pressure or continued friction. Where the pressure is not too prolonged a mere localised elevation occurs, with the production of a small raised tumour composed almost entirely of horny material. The colour is a transparent yellow, and the shape more or less hemispherical, the edge gradually sloping down to the normal level. In the common corn on the foot produced by the boot the pressure from the outside is sufficient to prohibit the formation of an elevated tumour, and consequently the hypertrophied layer is crushed into the skin, causing an atrophy of the adjacent structures. Microscopically a vast mass of horny layer is seen dipping down into the corium, and separated from it by the mucous layer, which is somewhat flattened out The skin

papillæ are pointed or lost in the centre, while those at the margin are larger than normal, and beneath the surface of the corium a large lymph space, the bursa, may be found, though in my experience it is uncommon. Owing to the pressure the circulation is altered, and the nerve terminals are irritated, so that intense pain is often produced. Not very uncommonly some infection may spread down from the surface, and troublesome suppuration occurs, with necrosis of the tissues and ulceration.

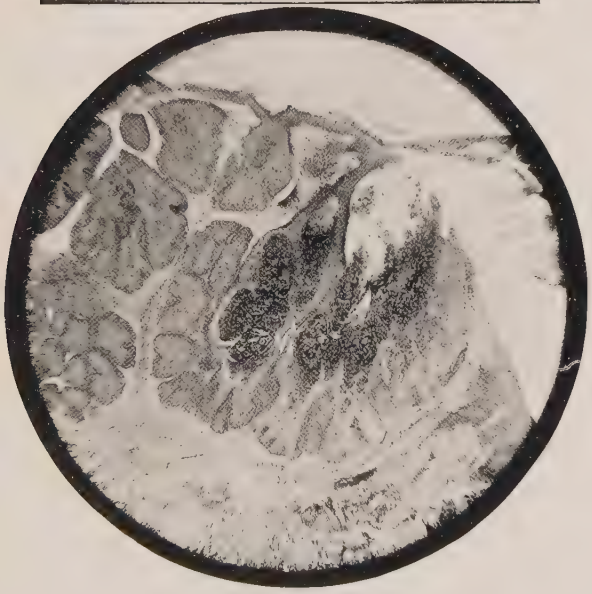
Treatment may be directed towards the alleviation of the symptoms, or a radical cure may be attempted. The part may be painted with 10 per cent. salicylic acid in collodion, or a salicylic plaster may be used. Better still, the corn may be surrounded with a ring of thick strapping, the centre powdered over with dry salicylic acid, and the whole covered in with thin strapping. After two or three days the plaster should be removed, the part soaked in hot water, and as much as possible of the white macerated horny layer scraped away, after which the dressing may be renewed. Lastly, the whole corn and bursa may be excised and the wound stitched up. In all cases, of course, the fitting of the boot must be improved to avoid further pressure on the part.

Molluscum Contagiosum (Acne Varioliformis of Bazin).—Although this growth is now known to be of an infective nature, it is perhaps better to include it among the tumours, as there are none of the ordinary signs of inflammation present. The growth has excited considerable interest on account of the supposed presence of parasitic psorosperms in it, but it is now proved that these bodies are in reality peculiar changes of the epidermis, and that the real cause of the disease is so minute as to pass through a Berkefeld filter, though it is arrested by the Pasteur-Chamberland. The disease is common in birds, from which it is often contracted by man, and in which it causes peculiar warty growths, often fatal.

Symptoms.—The tumour is of slow growth, and first appears as a minute circular wart, in the centre of which a fine plug may be seen with the aid of a lens. After six or eight weeks it may grow to the size of a sixpence, though this is rather unusually large. It is then of a peculiar bluish-pink colour,

MOLLUSCUM CONTAGIOSUM ON THE THIGH





PHOTOMICROGRAPH OF MOLLUSCUM CONTAGIOSUM. (The "Molluscum Bodies" form a Darkly Stained Mass in the Centre.) X 200

with steeply domed edges and a shining surface, except in the centre, where the plug is now obvious. On vigorous pressure a white, tough body may be extruded, generally accompanied by some hæmorrhage, and under the microscope the characteristic oval and transparent "molluscum bodies" are seen. The tumours frequently end in suppuration and spontaneous cure.

Microscopic sections of the whole growth show that it is not in connection with the pilo-sebaceous follicle, but is due to the overgrowth and peculiar degeneration of the mucous layers of the epidermis.

The *treatment* may be by incision and expression of the plug, with subsequent antiseptic treatment; by the injection into each of a drop of pure carbolic acid; or perhaps best by boring into each with a grooved needle dipped into melted silver nitrate, so that it becomes charged with a sheath of the salt.

Epithelial Moles—*Symptoms.*—Moles may be composed of almost purely papillomatous outgrowths, when they usually appear in streaks and large patches (nævus unius lateris, nævus nervosus, and one form of ichthyosis hystrix), or they may form tumours consisting of a mass of cells in the corium. The first form is comparatively simple, but the second has given rise to much discussion. This variety shows itself as an elevated, generally more or less hemispherical growth, usually of a dark colour, and frequently containing large bristle-like hairs. The tissue of which the tumour is formed consists of masses and columns of cells buried in the corium. These cells are of moderate size, show no connecting fibrillæ, and do not resemble ordinary epidermic cells. Originally believed to be of epithelial origin, they were stated by von Recklinghausen to be due to overgrowth of the lymphatic endothelium. Later, Unna again supported the epithelial view, and, after a thorough investigation, I am satisfied of its correctness, having repeatedly demonstrated, first, the degeneration of portions of the epidermis, with loss of the cell fibrillæ and the acquisition of intracellular pigment; and, secondly, the downward growth of processes into the true skin. These moles sometimes take on malignant characteristics, and are then generally but erroneously termed melanotic sarcomata.

The *treatment*, if any, of moles should be complete removal, large ones being excised and small ones destroyed with either the electrolytic needle, the galvano-cautery, or by freezing.

Epithelial Growths of the Epidermal Appendages.—There is a class of tumours whose origin is not yet quite clearly established, but which appear to proceed in some cases from the hair follicle (tricho-epithelioma benignum, benign cystic epithelioma, epithelioma adenoides cysticum), and in others from the sweat glands (hidrocystoma, cyst adenoma papilliferum).

Symptoms.—All these appear as yellowish, firm nodules from a pin's head to a pea in size, and are situated in some cases on the face, and in others on the trunk. Malignant transformation has been noted in some cases of the hair follicle variety. *Diagnosis* is difficult without a histological examination, and the *treatment*, if any, should be removal with the knife or cautery.

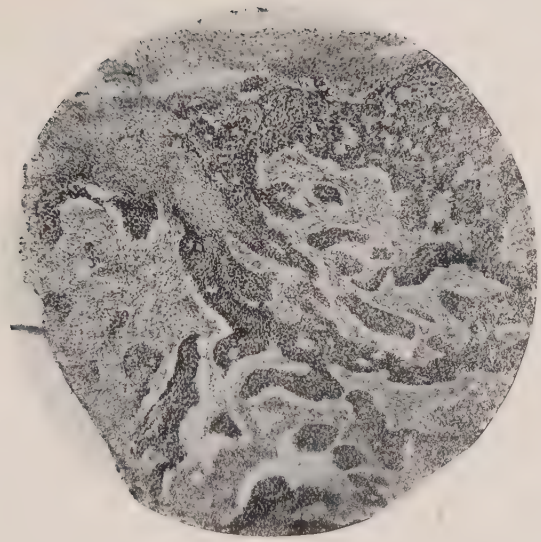
(*b*) Malignant Tumours.

These may be secondary to deep carcinoma by direct invasion of the lymph channels, and one particular variety, the so-called cancer *en cuirasse*, spreads almost entirely in the skin, causing wide areas of infiltration around a small atrophic scirrhus in the centre. There are also four varieties of primary carcinoma of the skin.

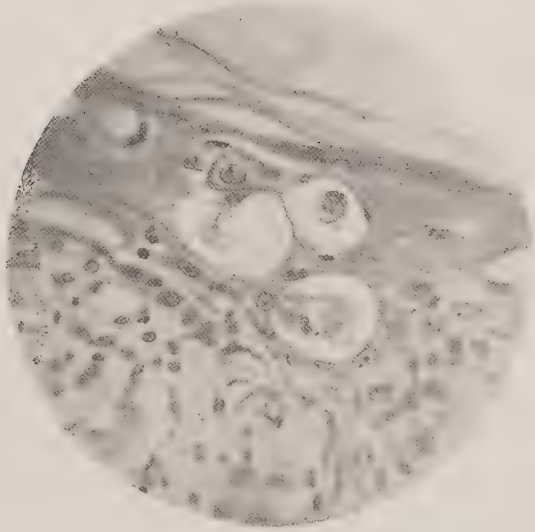
Prickle-Cell Carcinoma, Squamous Epithelioma—*Symptoms.*—This takes the form of a prominent tumour, either warty or ulcerative, most often seen on the face or hand. The characteristic malignant infiltration of the surrounding skin is obvious, deep structures are often invaded, and lymphatic glands are usually, though not invariably, affected. The tumours are sometimes multiple. Microscopically the growth consists of large squamous cells, many of which retain their prickles, and cell nests are frequent.

Treatment should be thorough surgical ablation.

Basal-Cell Carcinoma, Rodent Ulcer—*Symptoms.*—In this form the tumour is usually a flat, ivory-yellow, or pearly infiltration showing some dilated vessels on the surface. Ulceration may occur early, or the tumour may remain with



RODENT ULCER



PAGET'S DISEASE SHOWING THE PECULIAR BODIES IMMEDIATELY BENEATH THE HORNY LAYER LYING IN SPACES IN THE EPIDERMIS
X 1000

intact surface for years. When ulceration occurs, it may extend rapidly or slowly, and may at any time invade deep structures, such as the subjacent bone. It is commonest at the angles of the eyes (Jacob's ulcer) and the alæ nasi, and Cheatle has shown that it has a special tendency to occur over certain areas generally believed to be related to the arrangement of the nervous system, and to spread in a peculiar manner. Adamson has demonstrated clearly that the common parts of origin of rodent ulcer on the face are also those of benign cystic adenoma. He makes out a good case for the close relationship between the two, and regards rodent ulcer as a degenerative form of the benign growth occurring later on in life. Secondary invasion of lymphatic glands does not occur. Microscopically the growth is seen to consist of cells without prickles, and with ill-defined margins and large nuclei resembling those of the basal layer of the epidermis. Cell nests are rare.

Treatment.—Only two methods seem to me to be justifiable as routine treatment of rodent ulcer. The first is by means of X rays or radium (which I regard as identical), and the second is by surgical ablation. If X rays or radium be used, it is, in my opinion, better to give a continuous series of small doses either daily or five times a week than to use the massive doses at long intervals now generally recommended, and I am fully aware that I am in opposition to many experienced observers in taking this view. It has been, however, impressed upon me after a comparison of my earlier cases, when the small dose frequently applied was used, with the later ones, when, following the prevailing fashion, I applied the massive, measured dose at long intervals.

In any case, **I cannot too strongly urge the necessity of resorting at once to surgical ablation should the case not progress rapidly towards cure under ray treatment.** It is also to be remembered that if bone is involved both radium and X rays are practically useless.

Melanotic Carcinoma (Nævo-Carcinoma).—This form results from the malignant transformation of a pigmented mole. It is usually classed in surgical textbooks as melanotic sarcoma. It is also pointed out that, unlike sarcomata in general, this form spreads by the lymphatic rather than the venous system.

Modern research has, however, conclusively proved that the pigmented mole and the melanotic malignant tumour derived from it are both of epithelial origin, and the lymphatic spread is therefore to be expected.

Symptoms.—Clinically, the tumours show as mushroom-shaped protuberances of variable size and colour arising from what seems to be healthy skin. Palpation shows a deep infiltration below, but there does not seem to be much lateral undermining of the skin around. Ulceration may occur, but is not the rule. Metastasis in the lymphatic glands, and thence all over the body, is usually early and marked, so that some say that removal is useless. As, however, in some cases this remote malignancy is not present, wide removal should be undertaken immediately. It is not easy to determine either clinically or microscopically whether a mole has taken on malignancy or not, especially if irritation has caused any inflammation around it. A good rule is, therefore, to advise the removal of all moles which show any tendency to growth or irritation.

Microscopically one finds in the epidermis collections of cells which have lost their prickles and have taken on pigment, and in the corium beneath masses of spindle and polygonal cells, some containing pigment, embedded in a much rarefied fibrous matrix, and surrounded by lymphoid cells. The *diagnosis* of malignancy rests, as far as I have been able to determine, upon the disappearance of the fibrous tissue separating the masses of cells and the resumption of activity in the surface epidermis, which can be seen growing down into the corium and breaking off into cell masses.

Paget's Disease of the Nipple and Skin.—This disease occurs most frequently in or around the nipple, but it has also been observed in the axillæ and genital regions and umbilicus of both sexes, and I have seen an instance of it above the crest of the ilium.

Symptoms.—The disease occurring in the nipple is unilateral, and begins with a scaly infiltrated patch of rather dark red colour. Soreness is a marked feature from the earliest stages. Very slow spread is usually observed, and after the patch has attained the size of a half-crown the nipple has disappeared and the surface has become eroded, showing a lurid red, velvety

area covered with a thin mucoid discharge, and often showing small white areas which correspond to a macerated horny layer. Infiltration is now marked, and the description of it as of "a penny felt through cloth" is very accurate. By degrees the process may spread almost indefinitely, but usually without the infection of lymphatic glands. Later, malignant tumours of the breast may occur, with metastasis and general remote malignancy. In other situations, where no structure such as the breast underlies the diseased area, further malignancy may take the form of ordinary squamous-celled carcinoma growing from the denuded surface.

The *diagnosis* usually required is from simple eczema of the nipple and areola. This is to be made from, first, the unilateral distribution; secondly, the card-like infiltration; thirdly, the shrinking and loss of the nipple; fourthly, by extemporary microscopical examination. For this purpose some scales, if the patch is dry, or a superficial scraping if moist, should be mounted in liquor potassæ and examined with $\frac{1}{6}$-inch objective. Search will reveal embedded in the scale or free in the fluid the curious round bodies with double outline, a little smaller than an epithelial scale, which have been mistaken for psorosperms.

The *anatomy* of the disease is very characteristic. One sees a vacuolation, loss of prickles, and general loosening of the deep epidermic cells, combined with a tendency to downward growth. The sweat glands and milk ducts are stuffed with proliferated epithelium, and hence the name of duct cancer applied by Thin. Below the diseased epidermis is an extremely dense band of plasma and lymphoid cells. Sampson Handley believes that the epidermic symptoms are secondary to lymphatic obstruction produced by malignant infiltration beneath rather than that the epidermic disease is itself of a malignant nature. I do not think this view is correct, first, because it is difficult to see where the deep primary carcinoma can be when Paget's disease occurs, for instance, on the flank; secondly, because in cases of extensive permeation and infiltration of the skin from carcinoma of the breast, lymphatic obstruction may occur to so great an extent that lymph vesicles may form in the corium in addition to the actual nodules, and yet nothing resembling Paget's disease results.

Treatment.—Some authorities advise the use of caustics, the X rays, and other minor procedures, but, viewing the matter as a whole, I advise the complete surgical operation for removal of the breast, even should the disease be seen in its early stages, as there is often deep, though unrecognisable, malignancy in the breast.

2. The Connective-Tissue Tumours.

(*a*) Benign Tumours.

Fibroma.—Small fibromatous tumours are occasionally found in the true skin, and on rare occasions may grow to a large size. They usually cause a pallor of the surface by pressure, but occasionally one finds a congestive redness and atrophy of the overlying parts. In extremely rare cases the tumours are symmetrical and run in families. Calcified fibromatous tumours of the skin also occur very uncommonly, and are then generally part of the rare disease known as myositis ossificans.

Neuro-Fibromatosis (Von Recklinghausen's Disease).—This is a rare disease of the connective tissue, chiefly attacking the perineurium. The *symptoms* of the disease are, first, the presence of numerous tumours lying beneath the epidermis and in the deeper parts of the skin; secondly, tumours of the nerve trunks; thirdly, patches of pigmentation, so-called *café au lait* patches, and hairy moles; lastly, there may be a peculiar elastic form of elephantiasis of the skin of part or the whole of a limb. The cutaneous tumours are very variable in their appearance, some hanging as pendulous and very soft growths with a wrinkled surface; others appearing as spherical swellings of a peculiar elastic consistency, immovable in the corium; and a third variety like the last, but freely movable through the corium, so that one can press them into the subcutaneous tissue, leaving a depression in the corium into which one can invaginate the superficial part of the skin and the tip of the finger.

The disease is probably always congenital in origin, but, like so many of the congenital diseases of the skin, may fail to develop sufficiently to attract attention until the patient arrives at the age of puberty. It is frequently associated with defective mental development, and sometimes there are symptoms





XANTHOMA TUBEROSUM. (Family Type. One Sister also Affected)

suggesting that similar growths are present in the brain. Pain or tenderness on pressure may be present, or, again, there may be no subjective symptoms at all, and the patient may complain of the disfigurement alone. Malignant transformation has been reported. In the examination of tumours from four cases I found the growth to consist of a gelatinous-looking material, which, when seen under the microscope, proved to consist of numerous large spindle-shaped cells with oval nuclei, and very little delicate fibrous tissue around them. There was no staining reaction comparable to that of neuroglia, otherwise the resemblance to glioma was considerable. Nerve fibrils of embryonic type were found in all cases.

No *treatment* was of any avail, and the tumours continued appearing while the cases were under observation. In one case some of the tumours disappeared spontaneously, leaving atrophic patches to mark their former sites.

Keloid.—This is apparently a peculiar form of fibroma. It is carefully distinguished by some from the hypertrophic scar, which is supposed not to pass beyond the limits of the original injury, whereas keloid is a progressive disturbance which may invade to any extent. Formerly it was believed that keloid might arise spontaneously, and this form was distinguished from the traumatic form. Modern observers, however, mostly believe that all keloid originates in a scar, though it may be a mere acne pustule, or even a flea-bite.

Symptoms.—The appearance is of a hard, glossy, red tumour, often with claw-like processes running out on either side, and large vessels coursing over the centre. Pain, tenderness, and itching are common symptoms.

Anatomy.—Microscopically it consists of a wavy fibrous tissue rather rich in cells, and containing no appreciable amount of elastic tissue. The papillæ of the skin in the neighbourhood of the tumour are stretched out and have disappeared. The *pathology* is unknown.

Treatment.—Most cases of keloid may be successfully treated by full doses of radium or X rays.

It is necessary to protect the normal skin accurately up to the edge of the lesion in order to avoid the production of telangiectatic atrophy. Three full pastille doses, with an

interval of three weeks between each pair, are generally sufficient.

Myoma.—Small tumours, apparently derived from the muscles of the hair follicle, are occasionally found. They occur in groups or scattered over the face or chest, and in one case of mine they were limited to the area supplied by the supra-orbital nerve, and it was stated that they appeared suddenly with an attack of herpes zoster. The tumours are of a peculiar dull red colour, very hard and somewhat translucent, and are often extremely tender on pressure. Microscopic examination shows them to consist of bundles of unstriated muscle running in all directions through the corium. They may be excised or removed with the cautery.

Angioma.—Several forms of hæmangioma occur in the skin.

First may be mentioned the small angioma consisting of a central dilatation of a bloodvessel surrounded by branches (so-called "spider nævus"). This form may be either congenital or acquired, and, if the latter, is often traumatic in origin. I have satisfied myself from repeated observation that they are not uncommonly produced by the bites of insects, and are probably of the nature of small traumatic aneurisms. They may be treated by introducing into the centre an electrolytic needle attached to the negative pole, and passing a current of 1 to 2 milliamperes for about twenty seconds.

Secondly, there is the large capillary nævus known as the "port-wine stain." This is too well known to need description beyond stating that occasionally the distribution coincides with that of a nerve area.

Treatment.—If noticed at birth, treatment by compression may be attempted, and for this purpose the area should be painted daily with collodion (not the flexible variety). Later, where the area is too large to be excised and the edges of the wound brought together, success in treatment is very problematic. I have tried multiple close scarification without producing much difference, and electrolysis by means of closely set punctures with some, but not much, improvement. More recently I have had fair success by tattooing the whole surface with the galvano-cautery to a depth of about $\frac{1}{16}$ inch. Not too large an area should be treated at one time, or the swelling

produced becomes very formidable. The punctures should be sufficiently close to cause complete interruption of the nævoid circulation, but should be sufficiently spaced to leave some living epidermis between them, so as to minimise the scarring.

In this form of nævus neither radium nor freezing produces good results.

Thirdly, there is the cavernous nævus, which appears as a rather deeply-seated bluish tumour, varying in size from that of a nut to that of an orange, and often showing dilated superficial capillaries in addition.

Treatment.—Very large nævi of this type, anywhere but on the face, are best treated by surgical ablation, and if the incision is carried sufficiently wide of the tumour, the hæmorrhage is not formidable. Smaller tumours on exposed parts may be treated efficiently by means of the galvano-cautery or the electrolytic needle. On the whole I prefer the latter, as giving better scars, though taking longer time. I use multiple needles of platino-iridium attached to the positive pole, and these are mounted on moderately stiff wires so that I can bend them into any required position. The growth is pierced all round the circumference by these, and a disc-shaped carbon electrode connected with the negative pole is placed in the centre. A current of about 15 milliamperes has proved sufficient in my cases, and is passed until the tumour feels quite solid, but no blanching of the skin should be allowed. The needles are then carefully withdrawn and the part covered with collodion. After an interval of about six weeks one is able to determine whether the operation needs repeating. In those cases where there is a superficial capillary angioma in addition I use a needle attached to the negative pole in place of the carbon electrode. With this needle I closely tattoo the surface, leaving it in only a short time at each insertion, on account of the great strength of current used.

If it is preferred to treat the case with the galvano-cautery, a rather long point should be selected so that one can almost transfix the nævus with it. It should be used at a dull red heat, as if it is very hot there is a risk of producing considerable hæmorrhage, and the growth should be pierced almost through in several directions. It is better not to attempt to complete the cure on a single occasion, as the scarring goes

on for some weeks after the burning has set up a sclerosing process.

More or less superficial nævi may also be very successfully treated by freezing with carbonic acid snow. Care must be taken that the snow be not applied for too long in young children. I usually content myself with fifteen seconds at the first application, lengthening this if necessary for subsequent applications. Deep cavernous nævi may frequently be caused to disappear completely by suitable exposures of radium.

Lymphangioma Circumscriptum.—Several forms of lymphangioma have been described, but this is the only one which certainly deserves the name, the lymphangioma tuberosum of Kaposi being in all likelihood really an adenoma of the sweat glands.

The disease is congenital in origin, but may first become marked in late childhood.

Symptoms.—It appears as a patch of numerous, more or less translucent, deeply-seated vesicles, over which there is a slight tendency towards wartiness of the epidermis. Careful examination shows that these vesicles really lie, not in the epidermis, but in the substance of the true skin. Not infrequently a central dark red point in the vesicle marks the site of a small tuft of dilated bloodvessels. The disease may give rise to no annoyance, but more often the patch is prone to acute attacks of inflammation simulating erysipelas, and it is on this account, as a rule, that patients seek relief. Microscopically, one finds the presence of distended lymph spaces lined with endothelium pressing on the fibrous tissue, and causing a distinct atrophy, so that in places the papillary body is almost lost and the lymph space is only separated from the epidermis by a few strands of fibrous tissue.

Treatment.—Where possible, excision is the best treatment, but this generally entails a rather large loss of skin, as outlying groups of vesicles are usually present, and if not removed will cause relapse. Short of this, stabbing each vesicle with a cautery is the best treatment. The cautery should be of considerable mass, and at a fairly high temperature, since it becomes rapidly cooled by the flow of serum as soon as the vesicle is entered.

Xanthoma (Xanthelasma).—Three main types of this curious disease are recognised—namely, xanthoma planum, xanthoma tuberosum, and xanthoma diabeticorum.

Symptoms.—Xanthoma planum occurs in the shape of flattened, infiltrated patches of a brownish-yellow colour, almost invariably situated on the upper or lower eyelids. It gives rise to no inconvenience beyond the disfigurement.

Xanthoma tuberosum is often associated with the above form, but it may exist alone. In this type the yellow infiltration is of a bright canary colour, and forms tumours varying in size from that of a lentil to that of the fist. The distribution is usually upon the elbows, the knees, and the flexures of the phalangeal joints, but other parts may be attacked. Owing to their position on the elbows and knees, and the consequent liability to trauma, there is sometimes a line of hyperæmia around them.

Anatomy and Pathology.—The histology of both forms shows that the colour is due to the accumulation of fat in large droplets in the growth. In specimens from which the fat has been extracted it may be seen that the growth itself consists of large hyaline cells with one or more oval nuclei, some of the cells showing a ringed arrangement of nuclei, and resembling to a certain extent ordinary giant cells. The whole growth is therefore suggestive of endothelial proliferation associated with a peculiar fatty metamorphosis. It was formerly believed that both these forms of xanthoma were the result of some obscure liver disturbance, and this opinion is to some extent still held; but more recently the view has been put forward that the disturbance of the liver is rather associated with that of the skin, and this derives some support from the discovery of xanthomatous patches in the bile ducts. Certainly family predisposition is marked, perhaps more especially in the tuberous generalised cases.

Xanthoma diabeticorum can usually be differentiated clinically without knowledge of the presence of glycosuria.

Symptoms.—The lesions, although still yellowish in the centre, show a much more marked hyperæmic area around them, so that the prevailing colour is rather red than yellow, and an inflammatory disease rather than a new growth is suggested. The face is very rarely affected in this type of

xanthoma, the commonest sites being the extensor surfaces of the elbows and knees, the buttocks, and the hands. A further difference from the other forms lies in the variable and evanescent character of the lesions. The growths appear generally in crops simultaneously with the passage of large quantities of sugar in the urine, and improvement in the diabetes is generally associated with involution of some of the skin lesions.

The *diagnosis* lies between xanthoma in young children and urticaria pigmentosa, and is given under the latter disease.

Treatment.—Until recently this was very unsatisfactory, but Willmott Evans has shown that exposure to the X rays, sufficient to cause a slight erythema, is followed by disappearance of the tumours. Small patches may be removed by electrolysis, and larger ones by a deep freezing with carbonic acid snow.

The pseudo-xanthoma elasticum of Balzer, now more often known as elastorrhexis, is an entirely different disease. The only case I have seen and examined showed itself in an elderly woman, and affected all the abdomen and thorax, somewhat resembling very marked lineæ albicantes on which had developed small tumours of an ivory colour. Microscopic examination showed them to consist of masses of material giving the staining reactions of elastic tissue, but present in coarse bundles and blocks, rather than fibrils.

(*b*) Malignant Tumours.

These may either be primary or secondary.

The secondary form may result from any kind of internal sarcoma, but follows sarcoma of the testicle with especial frequency. Leukæmia and pseudo-leukæmia are also occasionally associated with metastasis in the skin. In all these the tumours appear as hard swellings in the deeper parts of the skin, at first pale, but later, as they grow to the surface, assuming a dusky reddish-brown colour.

The primary forms may be divided into the solitary sarcoma and endothelioma, which may occur in the skin as elsewhere; multiple sarcomatosis of the skin, pigmented or not pigmented; the pigment apparently due to extravasation of blood; the idiopathic pigment sarcoma of Kaposi, which is more probably



MULTIPLE SARCOMA OF THE SKIN WITH INVOLVEMENT OF TESTICLE



MYCOSIS FUNGOIDES

of inflammatory nature; and mycosis fungoides, to which may be related lymphodermia perniciosa.

Only the last two will receive any detailed description.

Mycosis Fungoides (Granuloma Fungoides).—In placing this disease with the malignant tumours I am aware that I am in opposition to the opinion of most modern observers, who look upon it as a chronic infective inflammation, but my reasons for this will be explained under the pathology.

The disease is fortunately a rare one, since, until recently at any rate, it terminated fatally almost without exception, and the last stages were of a horrible nature.

Symptoms.—Two types are recognised—namely, that which begins insidiously with the development of an apparently innocent-looking eruption (premycotic stage), and that in which tumours occur from the first (mycosis fungoides d'emblée of French authors). The second type differs from the first only in the omission of this early stage.

The eruption of the early stage may simulate eczema urticaria, psoriasis, or lichen planus, and occasionally pemphigus. As a rule, there is a preliminary scurfiness of the scalp with loss of hair, but it is difficult to say whether this is merely part of a general malnutrition of the skin or an essential element of the disease. The rash itself, which is generally dry and scurfy, is characterised by an intense indolence. It usually appears as ringed groups of small papules or as circular patches; at all events, the tendency to form circles and ovals with central islands of unaffected skin is very marked. The eruption is apt to be of a brownish-red colour, and the edge of the patch is very sharply defined. Treatment by ordinary measures is without effect, though individual lesions may slowly disappear spontaneously. The only symptom in this stage is intense itching. As times goes on, the lesions change somewhat in character, and tend to become more deeply situated in the skin, giving rise to the sensation of a moderately soft infiltration. This stage may last years without further development, but eventually some of the patches grow into actual tumours. These tumours are generally round or oval in shape, and are often somewhat depressed in the centre, so as to resemble the half of a tomato embedded in the skin. They are then always soft, and sometimes of a semi-fluid con-

sistence; they increase in number, and although they may be situated anywhere, they have perhaps a special tendency to attack the face, so that the disfigurement is frightful. Some of the actual tumours may disappear spontaneously, but more frequently they necrose and leave large, round, or reniform ulcers with a sloughing base. They then become infected with the common organisms of suppuration and putrefaction, so that the patient arrives at a stage of severe intoxication and exhaustion, from which he finally dies. Internal metastasis seldom occurs, but growth in the testicle has been noted, and the inside of the mouth is not uncommonly affected.

Pathology and Anatomy.—Even in the papular stage the anatomy is quite characteristic. The papillary layer and underlying corium are the seat of a marked collection of new cells. These vary a great deal in size and shape, but the majority are large, oval cells with a well-developed nucleus. They are not packed very closely, but are rather separated by a fine fibrous reticulum, which is probably the remains of the normal fibrous tissue of the skin. The corium is, therefore, not entirely destroyed as in lupus, nor densely packed as in syphilis, and probably for this reason the feel of the lesions is neither hard nor soft. To me, the most striking point on close examination is the richness in mitosis of the new cellular collections. In no infective disorder that I have examined is there present anything comparable to it; on the other hand, in the sarcomata this is exactly what is found. Plasma cells are very scanty or absent in the early stages, and polynuclear leucocytes are not numerous. The epidermis is altered also, the interpapillary growths being thinned out and stretching down deep into the infiltration, while the cells of the deeper layers also show a considerable number of mitotic figures. The horny layer is usually parakeratotic, but this is only to be expected in view of the severe disturbance of the papillary body beneath. In necrotic and ulcerative lesions the picture is complicated by the sepsis, and numerous leucocytes and fragmented cells with a few plasma cells are to be seen. It is, however, obviously useless to study the disease in this stage with a view to elucidating its nature.

As has already been stated, most observers now look upon the disease as one of the infective granulomata, but from the

arrangement of the cells, and especially the mitosis, I incline to believe that it belongs to the sarcomata. Numerous organisms have been found, but none has established its claim to be considered the causal agent.

The *diagnosis* is only difficult in the earlier stage, and the points which should raise suspicion are the circumscribed edges, the tendency to form circles, the indolence, and the resistance to ordinary forms of treatment.

Treatment, until lately, was very unsatisfactory, being practically confined to the administration of arsenic, which delayed, but did not as a rule arrest, the progress of the disease. The introduction of the X rays has, however, put into our hands an instrument which is capable of causing the disappearance of the early eruptions and tumours, and the healing of ulcers. Some patients have remained well for long periods, but it is too early to say whether they are permanently cured. Most cases unfortunately relapse, and in the end die of the disease, but there is no doubt that considerable alleviation is obtained. One elderly patient whom I treated with X rays lost every symptom of his disease during nine years, and died of apoplexy at the end of this period.

Lymphodermia Perniciosa.—This disease is almost certainly to be allied to the last, and appears to form a connecting link between it and leukæmia on the one hand, and the sarcomata on the other. It begins with diffuse and circumscribed red patches, which itch intensely, and are found to be due to a marked infiltration of the skin. These patches grow into tumours, as in mycosis fungoides, but the disease differs from this in its tendency to be associated with enlargement of the lymphatic glands and spleen, and a high degree of leucocytosis. As far as I am aware, however, the examination of the blood has not revealed a definitely leukæmic condition, so that the disease may be regarded as a sub-variety of mycosis fungoides.

3. The Mixed Tumours.

Adenoma Sebaceum.—This tumour is in reality badly named, as in the majority of cases the growth is formed quite as much of angiomatous as of glandular tissue. The disease is congenital in origin, but becomes obvious in late childhood. It

is not uncommonly seen in idiot asylums, but is extremely rare in well-developed people. Usually several forms of congenital anomaly are associated with it.

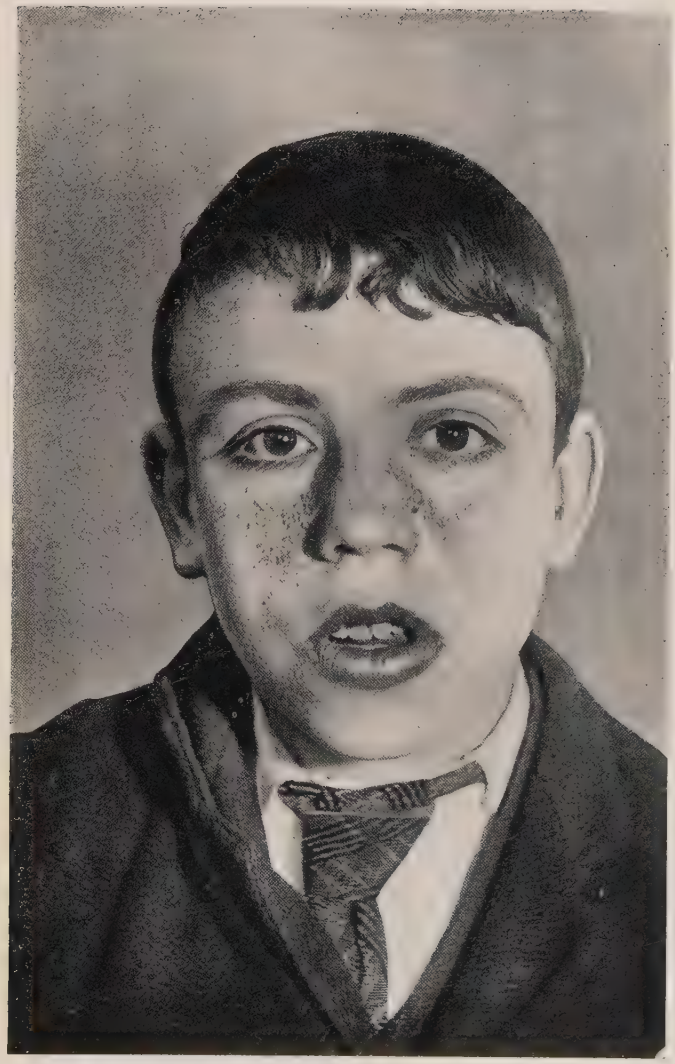
Symptoms.—The sebaceous adenoma is limited to the face, and affects especially the nose and malar eminences and the centre of the forehead. The tumours vary in size from that of a pin's head to that of a large pea. They are sometimes of a brown colour in cases where the sebaceous growth predominates, and at others of a bright blood-red where the tufts of bloodvessels are large. They give rise to no inconvenience beyond the disfigurement. Microscopically, one finds a simple overgrowth of the sebaceous glands associated with some cellular infiltration, and a variable amount of vascular new growth. Associated with adenoma sebaceum of the face, one generally finds localised thickened fibrous patches on the body, pigmented areas, and various hairy and glabrous moles.

In cases where the disfigurement of the face calls for treatment, each tumour may be carefully destroyed by the galvanocautery; the process is tedious, as relapse is apt to occur.

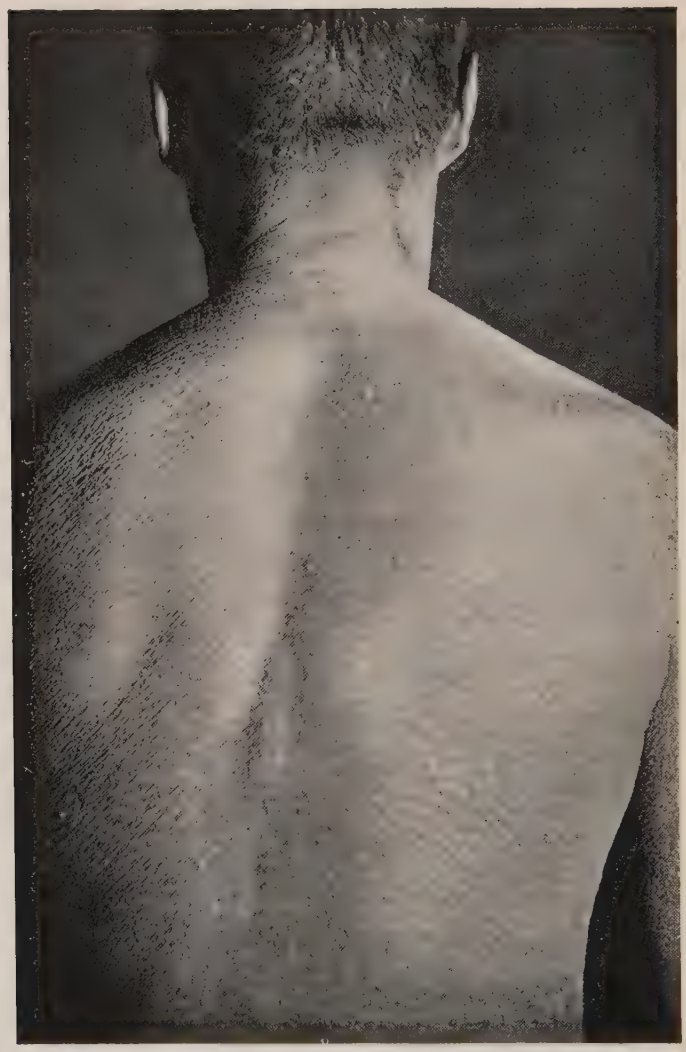
A curious "tuberose sclerosis" has been found in the brain in this disease.

Angiokeratoma.—This curious little tumour develops as the sequel to severe chilblain. Apparently the first result of the inflammatory disturbance is a dilatation accompanied by some overgrowth of the blood and lymph vessels of the affected area forming a small angiomatous patch. Over this vascular area there then develops a horny thickening, accompanied by papillary overgrowth, so that a hard papilloma is formed. The lesions occur on the fingers and toes, and are usually very numerous. They are of a transparent yellowish colour beset with dark red or almost black dots, which correspond to the enlarged vessels. Microscopically, dilatation of the lymph spaces is quite as marked as that of the bloodvessels.

The little tumours may be easily removed with the galvanocautery or the electrolytic needle.



ADENOMA SEBACEUM (Angiomatous Type)



ICHTHYOSIS. MILD DEGREE

CHAPTER XVIII

ICHTHYOSIS—LEUCODERMIA—SCLERODERMIA—SCLEREMA

Ichthyosis.

This is a congenital anomaly of the skin chiefly affecting the epidermis and its appendages. It is not infrequently first observed at the end of the sixth month of life, though a certain amount of dryness is probably always present at birth.

The disease varies greatly in severity, and different names have been given to the different grades. Thus, the mildest form of ichthyosis of the hair follicles on the extensor surfaces of the arms and legs is known as lichen pilaris; the mild form of general ichthyosis as xerodermia; a more severe form as ichthyosis simplex, nitida, or serpentina; and the most severe form as ichthyosis hystrix. Unfortunately, this last name has been also applied to linear moles, and had therefore better be dropped.

Symptoms.—The anomaly seems to consist of a premature and rather inefficient cornification of the epidermic cells, associated with partial or complete arrest of the cutaneous glandular secretion, though the glands themselves are always present. This disturbance is manifest clinically in the form of rather spiny follicles (lichen pilaris), sometimes reddened by friction; by a complete dryness of the skin except in the hollows of the elbows and knees, and the axillæ and groins; by a wrinkling and loss of elasticity of the epidermis, and a tendency of the surface to break up into diamond-shaped areas with scaling at the edges. In the most severe cases, veritable horns are produced by the accumulation of the keratinised masses. The palms and soles are dry, but not scaly, and the natural creases show as white lines; the skin generally, from its roughness, is almost impossible to keep clean, and the accumulated

scales are, therefore, usually dark in colour. The face is drawn, slight ectropion is not uncommon, and fissures form readily at the angles of the nose, eyes, and mouth. The scalp is scaly and the hair dry, lustreless, and brittle, and sometimes, from an irregular cornification at the mouth of the follicle, shows the beaded formation described under monilithrix.

The great importance of the milder degrees of ichthyosis is the liability to traumatic eczema which they entail. The badly lubricated and brittle horny layer is constantly cracking, and the small scales catch in the clothes and call forth a certain amount of pruritus.

Pathology and Anatomy.—Microscopically, one finds unusually tall and narrow papillæ, capped with rather a thin sheet of mucous layer, the cells of which are less definitely arranged than in the normal skin, the lowest vertical layer being often flattened horizontally. The horny layer is not parakeratotic, but the internal portion of the cell fails to undergo the proper fatty transformation and the granular layer is diminished or lost, the sweat and sebaceous glands are present, but are often partially occluded by excessive keratinisation at the orifices, and the acini are sometimes dilated. The cause is absolutely unknown, but it has been suggested that the disease is due to persistence of the embryonic epidermis or epitrichium. The disease has a strong tendency to run in families.

Treatment.—Permanent cure is out of the question, but many cases improve about the age of puberty.

Of internal remedies, pilocarpine and thyroid extract are the only two which have established any claim to consideration. The former causes a temporary improvement, but cannot be persisted with indefinitely, while the latter, in those rare cases in which it has a beneficial effect, may be taken at all events for long periods.

Locally, many drugs, such as β-naphthol, salicylic acid, and resorcin, have been recommended, but it appears that the vehicle is more important than the drug. Some patients find the inunction of vaseline, after a prolonged soaking in a hot bath, the most comfortable, but on the whole I have the most often found the glycerin of starch, perhaps preserved with 1 per cent. of salicylic acid, the best preparation. At all events, frequent soaking in hot baths is of great use.

Keratoma Palmare et Plantare (Tylosis Palmaris et Plantaris).—This is a peculiar congenital disease consisting of an enormous hypertrophy of the horny layer of the palms and soles, and occurring not infrequently in many generations of a family. The horny layer is often well formed, but is so thick as to cause great interference with movement. Temporary benefit may be obtained by soaking in strong alkalies or the use of 20 per cent. salicylic acid plaster, but the condition is probably incurable.

Leucodermia (Vitiligo).

This is a disease of rather academic interest, inasmuch as it usually only causes slight disfigurement, and it is entirely uninfluenced by any treatment at present known.

The disease begins by the appearance of a more or less circular white area, around which the skin is usually more deeply pigmented than that of the general cutaneous surface—that is, in addition to the leucodermic area, there is a melanodermia. Very slowly the white area spreads at the expense of the dark, and if there are many patches, these run together to form polycyclical figures, but the edge of the white area is always convex, while that of the dark is concave, forming a distinction from true hyperpigmentation. The disease is commonest on the backs of the hands, the genitals, elbows, neck, and head, and practically never attacks the palms or the soles. Where the scalp is affected, the hair growing from the region is white, and the same is true of the axillæ and genitals. Occasionally alopecia arcata is associated with it. Cheatle has pointed out that the starting-points often correspond with certain of Head's maximum points, as is the case with rodent ulcer. The disease is rather frequently associated with exophthalmic goitre, and may occur in nervous diseases such as tabes dorsalis, but most cases are seen in apparently healthy individuals. Bloch has shown that the disease is due to a loss in the affected area of the specific ferment that breaks up the melanogenic substance and leads to the deposit of melanin. Beyond this, nothing is known of the pathology, and I have found no treatment of avail.

Sclerodermia.

This is a disease consisting of a series of alterations in the skin, terminating in either a fibrous hypertrophy or atrophy.

Three main forms are recognised—namely, diffuse sclerodermia, sclerodactyly, and circumscribed sclerodermia.

Symptoms.—Diffuse sclerodermia may begin with the occurrence of areas of œdema, usually symmetrically placed, or the condition may be fibrotic from the first. In the œdematous form the areas are rather harder than ordinary stagnatory œdema, and show a peculiar pinkish colour with a fine polished surface. Pitting is present to a slight degree only, and the process seems to extend somewhat deeply into the subcutaneous tissues, so that the skin is rendered less movable than normal over the subjacent structures. After a variable time the areas, which are at first swollen, undergo an atrophic shrinkage with fibrosis, so that the movement of the parts affected is almost completely lost. When the face is attacked, the expression becomes like that of a mask, and the mouth is rendered so immobile that talking and eating become difficult. Joints become fixed and muscles undergo an atrophy which depends partly upon disuse, but probably more upon the extension of the sclerosis into the muscles themselves.

The form in which fibrosis occurs from the first also shows an initial swelling, but pitting is absent and a more marked discoloration is present, with a peculiar lilac border to the patches. Atrophic changes do not usually follow, and the patches, once formed, remain of the same quality, merely extending peripherally at a variable pace.

In both forms the patches are sometimes white and sometimes pigmented. The distribution of the disease is generally symmetrical, and affects the limbs and face more severely than the trunk. Sensation may be diminished, but is very variable; the sweat function is usually unchanged, but may be increased or lost.

Subjective symptoms are very numerous, the commonest being aching pains like those of rheumatism, but sensations of heat and cold and formication have also been noted.

Sclerodactyly is probably a sub-variety of diffuse sclerodermia, but has the peculiarity of attacking the hands and



CIRCUMSCRIBED SCLERODERMIA (Morphœa)

feet to a much greater degree than other parts, and of being usually associated with acrocyanosis and asphyxia, like those found in Raynaud's disease. Extensive ulcerations and mutilations of the fingers and toes are not uncommon in this form.

Circumscribed Sclerodermia (Morphæa).—In this form the disease is limited to the production of one or more circumscribed patches. These are of variable size, and slowly increase in extent. The centre is generally of an ivory-white colour, and may be raised or depressed. Surrounding this is a zone of light brownish pigmentation, and outside, again, a margin of a very peculiar violaceous colour, known as the "lilac" border. In rare cases the epidermis becomes raised as a whole off the centre of the patch, giving rise to a bulla and subsequent ulceration. In some cases circumscribed sclerodermia attacks half the face, and the process extends to the whole of the deep structures, including the bone, when the condition is known as **Hemiatrophia facialis.** The patches, as a rule, have no particular shape, but are occasionally met with as long bands, and Cheatle has pointed out that the most frequent sites for the commencement of rodent ulcer and of leucodermia are also common to this disease.

Pathology and Etiology.—Although generally believed to be of nervous origin, nothing certain is known. Degenerated areas in the spinal cord have been described by reliable observers, but they do not appear to be constant. Anatomically, one finds a hypertrophy of the fibrous tissue of the corium in the shape of coarse bundles with, in my experience, no increase of the elastic tissue. There is always a considerable accumulation of lymphoid cells around the vessels, but whether this is a primary condition, which by compressing the vessels is a cause of the fibrosis, is uncertain.

Prognosis.—This is, on the whole, unfavourable in all diffuse cases. The worst are those which begin with œdema and proceed to atrophy, as these are the cases in which the greatest rigidity is produced. They commonly die of exhaustion, tuberculosis, or broncho-pneumonia. Localised cases are not serious, but the prospects of a cure are always problematical.

Treatment.—All cases should be carefully guarded against chill, as this invariably makes them worse. Drug treatment

directed against the disease is unsatisfactory, though some apparent improvements have been reported after the ingestion of salicyl compounds and thyroid extract. Much good may, however, be done by systematic massage and movements of the parts to prevent rigidity.

For the localised cases the injection of thiosinamin or fibrolysin twice weekly has been much praised by some, but I must confess to having been unsuccessful with it. It should be dissolved in 8 per cent. strength in glycerin and water (1 in 5), and about 15 minims injected in the neighbourhood of, or at a distance from, the disease.

I have no experience of the method of electrolysis used by Brocq, but the reports of others are unfavourable.

Sclerema Neonatorum.—This is a rare disease of newly-born children, in which shortly after birth nodose masses develop in the fat, chiefly on the back and buttocks. The process may extend and become universal, in which case the result is always fatal. It occurs in children born in unfavourable circumstances, chiefly among foundlings. Microscopically nothing is to be found, and it has been suggested that it is due to chilling and solidification of the fat. Favourable cases clear up after a few weeks, and nothing can be done beyond keeping the infant warm.

CHAPTER XIX

CERTAIN DISEASES OF THE HAIR

Alopecia Areata.

This is a disease characterised by the loss of hair in circumscribed patches, which may occur in circular areas or in some cases in streaks.

Symptoms.—Usually, without any premonitory symptoms, there occurs a sudden fall of hair from a single patch on the scalp. In women with long hair this is often unnoticed, and they believe the hair to be merely falling more than usual until the patch is accidentally discovered; but in men with short hair a regular tuft may be found on the pillow in the morning. The bald patch thus produced is usually of a pale and somewhat atrophic appearance, but is occasionally slightly pinkish, even when no local treatment has been applied. The surface is smooth and the orifices of the empty follicles are plainly seen, often filled with very small comedo-like collections of epithelial scales and sebaceous oil. Round the edge of the patch, and sometimes all over it, are scattered broken hairs varying in length from $\frac{1}{16}$ to $\frac{1}{2}$ inch. These hairs are often somewhat frayed out at the distal end, so as to produce an increase of thickness, whereas down towards the root they are completely depigmented and much thinned. On attempting to draw one of these it is found that it comes out entire with a completely keratinised root—*i.e.*, it has stopped growing and is in the process of shedding. Compared with the sensation experienced when drawing a normal hair or a ringworm stump, the following comparison may be useful: The normal hair gives one the sensation of sliding, and often a slight creak may be heard, similar on a small scale to that noticed when drawing a nail out of wood. The ringworm hair first stretches and then breaks like a half-burnt thread, whereas the alopecia areata hair comes out with a short, sharp click like that pro-

duced by pulling a piece of thread with a knot at the end through cloth.

After the formation of the first patch others almost invariably follow, and these may be either symmetrically placed or they may occur as satellites around the original patch in a way very suggestive of a parasitic invasion. The bald areas may remain stationary, or they may spread locally and new ones may appear, so that the whole scalp may be denuded and a total baldness may ensue. The process may affect other hairy parts, and the eyebrows, eyelashes, facial hair in men, and the body hair may be also lost. Occasionally a peculiar dystrophy of the nails with great thinning may take place, and not very infrequently patches of loss of pigment (leucodermia) may be associated with the loss of hair. The disease may occur at any age up to late middle life, but is most common in childhood and at the age of forty or thereabouts. The youthful cases are, as a rule, associated with no other symptoms, but the disease in middle age is often found in sufferers from severe headache. As a rule, the hair grows again on the patches, and complete restoration occurs; but the new hair is generally finer and fairer at first than the rest, and not uncommonly there may be fair or even quite white spots lasting indefinitely to mark the sites of the former loss. It is difficult to predict whether the hair will return at all, and, if so, how soon, but the presence of the short broken hairs (so-called "note of exclamation" stumps) is strong evidence that the loss is still proceeding.

In some cases the general scalp is found in a very unhealthy condition, being covered with thick, greasy scales, but in most there is no obvious disease.

Etiology and Pathology.—This is still obscure, but the two main opinions held are that it is an infective condition and that it is a trophoneurosis. Dealing with the infective theory first, it may be said that there is some evidence of the occurrence of the disease in outbreaks, especially in barracks, and chiefly in France. In this connection I may mention a case in which the bald areas first appeared after a stay in Paris, and in which the loose hairs, when stained and examined microscopically, showed the presence of an abundant growth of a very minute branching organism suggestive of a mould fungus,

but this is very rare in my experience. Sabouraud's theory that the disease is due to an acute infection with his microbacillus of seborrhœa has not found general acceptance, and, on the whole, the infective theory has not much evidence in its favour as regards the general run of cases.

The trophoneurotic theory is at once more difficult to support and to contest. The evidence may be stated as follows: It is known that excision of the second cervical ganglion of the cat is followed frequently, but not invariably, by temporary baldness in areas. Secondly, operations on the mastoid region have been on several occasions followed by the appearance of an alopecia area in the vicinity of the operation wound, and this is also only temporary. Thirdly, the administration of thallium acetate, a drug which has caused severe nerve intoxication, may cause a loss of hair in a manner exactly similar to that occurring in alopecia areata. Clinically, one finds occasionally that ordinary ringworm may be complicated by complete loss of hair over the affected areas. The ringworm infection is established first, and after a time the alopecia begins in the middle of the patches and spreads so as gradually to overtake the ringworm, so that all the hair falls out and the case undergoes spontaneous cure. Jacquet has suggested that the eruption and decay of teeth is the exciting cause, but this theory is, of course, extremely difficult to support or contradict. On two occasions in my experience patches of alopecia areata associated with carious teeth have disappeared after extraction of the teeth, and in one the disease relapsed about a year later, and another tooth was found to be carious. As, however, the patient refused to have this extracted, the proof of causal relationship is wanting.

Having been struck by the frequent association of alopecia areata with headache in adults, I was led to suspect eye-strain as a cause, and I have now collected many cases in which the disease, while proving rebellious to ordinary treatment, yielded at once on correcting the error of refraction. All these patients were occupied with fine work causing considerable ocular strain. Repeated examination of the youthful cases has convinced me that they are not related to eye conditions.

The association with severe seborrhœic pityriasis may be explained, perhaps, on the view that the peripheral irritation

is the cause of the baldness, as it appears to be in the ringworm cases mentioned above, and I may mention the somewhat numerous cases to which my attention was first drawn by Dore, in which a very severe infection with pediculosis capitis has immediately preceded the fall of hair.

Summing up the position, I would give my opinion that, although there is a very rare form which is undoubtedly parasitic, and possibly commoner in France than in England, the balance of evidence for the general run of cases is in favour of a neurotic influence, either locally or distally produced. The post-febrile cases, once considered so common, would fall in well with this view, since local neuritis is now recognised as a common sequel of infectious fevers.

The war has been followed by an enormous increase in alopecia areata among soldiers, and also during air-raids among civilians. After careful inquiry I have failed to find these cases occurring in a grouping suggestive of contagion. I regard it, therefore, as strong evidence in favour of the neurotic view.

Diagnosis.—The diagnosis of alopecia areata is not difficult. From the scar-leaving eruptions of the scalp, such as lupus erythematosus and depilating folliculitis, the condition of the bald area is quite sufficient to make the distinction. From ringworm the diagnosis rests upon the presence or absence of the characteristic ringworm stump, and the microscopic examination of the suspected hairs will supply the evidence. It must be remembered that "note of exclamation" stumps may be present in ringworm, and that the real eroded and infected hair must be sought for diligently as well.

Treatment.—From what has been already said as to the causation of the disease, it follows that the first point is a thorough investigation of the case as to the presence or absence of headache and debility, the presence of dental trouble, or the recent occurrence of acute disease or nerve shock. Apart from special attention to such matters as the eyes and teeth, it is difficult to be certain of the value of internal treatment, but I am of opinion that arsenic and strychnine in tonic doses, and perhaps the glycero-phosphates, have proved of service.

As regards the local treatment, the application should vary with the condition of the scalp. In those cases in which a

very greasy or scurfy condition is present, a sulphur, salicylic acid, or resorcin ointment is indicated, and occasionally immediate cessation of the fall will result.

℞ Resorcin .. .. ʒss.
(vel acid. salicylic. .. .. .. gr. xv.)
Sulph. præcip. .. .. ʒss.
Adipis præp. .. .. ad ʒi.

Where there is no obvious error, the epidermic surface stimulants may be used, such as:

℞ Aceti cantharidis .. .. .. ʒi.
Adipis lanæ .. .. ʒi.
Ung. hydrarg. oxid. rubr. .. .. ad ʒi.

or

℞ Formalin .. .. ʒss.
Glycerini .. .. ʒss.
Ung. aq. rosæ .. .. ad ʒi.

It is well, however, to begin with low percentages of formalin, as many people are very susceptible to it and react with the production of a vesicular eruption. Other drugs recommended are thyroid extract internally, and jaborandi or pilocarpine nitrate (gr. ii. ad ℥i.) externally, but I have not found them of much use.

Pseudo-Alopecia Areata.—This is a very rare disease of the scalp in which one or more areas of baldness, usually circular, appear. Careful examination of the denuded skin shows it to be atrophic, all the hair follicles having been obliterated by a cicatrising process. The hair round the edge of the patch comes out on the slightest traction, bringing with it a thick root sheath. The original patches spread slowly at the edges until, after years, the scalp is almost entirely denuded of hair. As a rule, the hair all over the head is found in a lustreless and wiry condition.

The *etiology* is unknown.

As regards treatment, I have now seen three cases arrested by daily inunction of—

℞ Acid. benzoic. .. .. gr. xxv.
Acid. salicylic. .. .. gr. xv.
Paraffini mollis .. .. ʒii.
Ol. cocois nucis .. .. ad ʒi.

Monilithrix (Beaded Hair).—This is also a rare affection of the scalp, and appears to be associated with mild ichthyosis.

The hair is lustreless, thin, and often broken off short. If a hair be examined with a hand lens or the low power of a microscope, it will be found to possess numerous constrictions at rather regular intervals along the shaft, and it sometimes shows some splitting. Fracture commonly occurs at one of the thin places, and consequently the hair does not attain its full length. The abnormality appears to depend on pressure from hyperkeratosis of the follicle.

Calvities.—Calvities, or baldness, is the term applied to the general loss of hair so commonly seen in men, and to a less extent prevalent in women. The condition is not a substantive disease, but is most commonly associated with a pityriasic or seborrhœic condition of the scalp (see p. 72).

Shocks to the system, such as occur with child-bearing or attacks of acute illness, especially severe influenza, determine a general loss of hair, commencing as a rule from six weeks to three months after the illness, and this is more or less completely recovered from in those cases where the scalp was previously healthy. Where a diseased condition of the scalp was pre-existent, the fall is exaggerated and the return to normal is delayed. Falling of the hair, with gradual baldness, unassociated with obvious disease of the scalp, is common in men, but not in women. No valid explanation of its occurrence has yet been found, but family predisposition is marked. Treatment by stimulants is usually adopted, but is of doubtful value. In a comparatively few cases of very acute general falling without local disturbance complete restoration has occurred on the administration of thyroid extract. Careful massage of the scalp with the tips of the fingers is of some use, the skin being moved over the underlying structures. The high-frequency current by means of the brush discharge is also praised by some.

℞ Acet. cantharidis .. .. .. ʒii.
Acid. acetic. glacial. .. .. .. ʒi.
Sp. rosmarini .. .. ʒii.
Aq. .. .. ad ʒviii.

℞ Liq. ammon. fort. .. .. .. ʒi.
Spirit. myristicæ .. .. .. ʒss.
Aq. .. .. ad ʒviii.

To be rubbed into the roots of the hair daily.

Hypertrichosis.—Apart from those rare cases in which thick hair grows all over the face and body, this condition is of interest, as it is a common cause of disfigurement of women's faces. Very frequently it is associated with a coarse skin showing wide, patulous follicles and a tendency to seborrhœa. The growth usually commences at the age of puberty, and shows a distinct tendency to acute exacerbation at the menopause. Some observers insist on its frequent association with pelvic troubles, but I think this is exceptional, though, of course anything causing an artificial menopause may stimulate the growth. It is often said that the use of greasy applications to the face, and especially those containing sulphur, is apt to produce the condition, and a temporary hypertrichosis undoubtedly follows the use of the Finsen light in some cases.

Treatment.—The hair may be temporarily removed at its point of exit from the skin by depilatories, the safety razor, or the scissors. Depilatories should be absolutely forbidden, as they corrode not only the hair, but the skin, and by causing repeated hyperæmia undoubtedly stimulate the growth. It is possible that shaving with a razor and clipping with scissors have some slight influence in the same direction, but, arguing from the analogy of men who shave, I am inclined to think that this influence is generally overestimated. For cases, therefore, in which treatment by the permanent method is out of the question I believe the use of the razor is advisable.

The hair may be permanently destroyed by the X rays or electrolysis. Of the former method it is necessary to say a few words. We know now that by the administration of a certain dose we can remove the hair temporarily, and it is claimed that by a relatively few administrations of the rays to the bald area thus produced we can secure a permanent loss of hair. Against this I would say that I have been unable to attain the desired result at will. Also there is considerable risk, not only of causing a dermatitis, but of producing without immediate disturbance a slowly progressive atrophy of the skin, which becomes very noticeable in a few years, and on which large dilated bloodvessels develop, causing great disfigurement. In my opinion, therefore, the X rays should never be employed to produce permanent destruction of the hair.

Lastly may be described the method of electrolysis. Of this

it may be said that in really skilled hands it is permanent, safe, and produces no visible scar. On the other hand, it is somewhat painful to the patient and extremely fatiguing to the operator. The patient should preferably lie on a couch in an easy position and in a good light. A large drum electrode connected with the positive pole of a battery containing at least twelve Leclanché cells should rest on the patient's lap. To the negative pole the needle should be attached by the lightest flexible lead. This may be either a No. 16 sewing needle with the point ground blunt, and preferably bent at an angle of 45 degrees, or one of those made specially for the purpose. I find no needle so good as that devised by Brocq, and made in platino-iridium. A galvanometer reading in milliamperes should always be in circuit. About six cells, giving from ½ to 2 milliamperes current, according to the thickness of the hair, should be used. Before the patient grasps the positive electrode the needle should be inserted into the follicle, and it is the manipulative dexterity required in performing this act which is the whole trouble. I use always as a lens what I believe is called a "corneal lupe," consisting of a pair of prismatic glasses set in a long spectacle frame, so that the bridge rests on the tip of the nose. One can easily look over the lenses when they are not required, and through them at the actual follicle to be catheterised. A lens of this strength is sufficient to give a good view, and yet not strong enough to necessitate unpleasant proximity to the patient. All lenses fastened to the needle holder are, in my opinion, to be condemned, as they add to its weight and destroy the sense of touch.

Having noted carefully the direction of the hair, the skin should be steadied by placing a finger of the left hand on each side, and a slight tension should be maintained. Holding the needle so that its axis is parallel with the direction of the hair, the point should be lightly laid on the skin at a short distance from the point of exit of the hair on the side on which the shaft makes an obtuse angle with the skin. It should then be gradually drawn back until the point falls into the neck of the follicle, and it is then gently pushed into the follicle. The slightest resistance should be recognised as a sign that the needle is not travelling down the follicle. As soon as the needle

is felt to engage the follicle thoroughly the patient is told to grasp the positive electrode, and the needle will then glide easily to the bottom of the follicle by its own weight. After ten to fifteen seconds the hand electrode is dropped and the needle withdrawn. During the passage of the current bubbles of hydrogen are often seen coming off, and are a good sign, as they show that the needle is in the follicle, at any rate at the surface. Any gradually developing whiteness of the skin is caused by a surgical emphysema, and is proof that the needle is in the corium outside the follicle. After the passage of the current for the time given above a slight yellowish ring will be seen to develop around the needle, and as soon as the slightest indication of this is seen the needle must be withdrawn, or a visible scar will result. A minute or two later the hair will be found quite loose in the follicle, and may be withdrawn without effort, bringing a gelatinous root sheath with it. By this time an urticarial reaction will be present round the follicle, and another must not be taken in such close proximity that the needle will fall within the urticarial circle. It is best to electrolyse five hairs in succession, and then remove them, as this number allows time enough for softening, whereas, if one does many more, one is apt to lose them. Altogether about fifty hairs may be destroyed in three-quarters of an hour. In some cases a 1 in 4,000 perchloride of mercury may be used afterwards to prevent pustulation, but this is only necessary in patients with unhealthy skins. The strictest precautions should be used to render the needle aseptic before commencement, and for this, among other reasons, the platino-iridium needle is preferable, as it can be heated to redness in the spirit lamp.

The urticarial swelling subsides within two hours, but for a day or two tiny reddish-brown scabs mark the sites of the corrosion, and in very dark subjects slight pigmentation may persist for weeks. Most cases treated in this manner do very well, provided they have the patience to go through the necessary amount of trouble. As a rule, after complete removal of the disfiguring hairs the neighbouring down develops slowly, so that from time to time a little more work is necessary. The best cases are those in which a few coarse hairs exist on a face on which there is not much down, and the older patients remain stationary longer than the young ones.

CHAPTER XX

XERODERMIA PIGMENTOSA—DARIER'S DISEASE—ACANTHOSIS NIGRICANS

Kaposi's Disease (Xerodermia Pigmentosa).

This rare disease, originally described in Vienna, and first identified in this country by Colcott Fox, belongs apparently to the disorders of congenital origin, and occasionally occurs in several members of a family.

The *symptoms* usually begin to show themselves at the end of the first or second year of life, and the first to appear are apparently ordinary freckles on the exposed parts—the face, hands, and arms. These lesions are worse in summer, and may even disappear in winter. Soon after these there develop definite signs of skin irritation in the shape of red blotches, which are followed by atrophy and telangiectasis, so that the skin becomes covered with small cicatrices, pigment spots, and dilated veins. Sooner or later some of the pigmented areas take on a papillomatous growth, so that multiple warts are added to the other lesions, and one or more of these growths may undergo malignant transformation, the disfigurement becoming frightful, and death finally resulting.

The only *treatment* available is the careful protection of the patient from exposure to the sun and the immediate removal of any growth showing signs of malignancy. Of recent years, cases have been successfully treated as regards the tumours by means of the X rays and radium.

Darier's Disease (Keratosis Follicularis).

This is an extremely rare disease, and will only receive the shortest notice.

Symptoms.—It begins as a slightly excessive cornification at the mouths of the follicles resembling lichen pilaris, and

may appear first about the face or trunk. The lesions grow and produce large horny plugs forming the centre of hemispherical papules, and these plugs are only removable with difficulty, leaving exposed a moist red base. In this stage, therefore, the lesions somewhat resemble those of molluscum contagiosum, but there is none of the pultaceous material to be expressed. As the eruption spreads the skin becomes closely covered with the lesions, and a peculiar rancid odour develops, especially in the hottest parts. The health is not affected unless severe septic complications set in.

The *histology* shows that most, but not all, of the lesions are follicular in site, and that the process is a peculiar form of cornification, with the production deep down of hyaline bodies, originally thought to be psorosperms.

Treatment is not very successful, but all the keratolytic agents—salicylic acid, resorcin, pyrogallol, and prolonged alkaline baths—have been used with more or less benefit.

Acanthosis Nigricans.

This disease is characterised by a gradually increasing pigmentation affecting chiefly the normally darker parts of the skin, such as the axillæ, groins, and neck, associated with marked hypertrophy of the mucous layer of the epidermis. This hypertrophy at first merely exaggerates the small angular areas which are seen on normal skins. By degrees, however, these areas become more and more prominent and the sulci between them deeper, until a state of papillomatosis is produced. In the axillæ, the groins, the anal fold, the lips, tongue, and palate, which are similarly affected, the papillary overgrowth may increase until the elevations are ¼ inch or more in height, and, owing to the stagnation and decomposition of the secretions between them, ulceration is often produced. Ordinary flat warts may occur in addition. The disease is characteristic, and when once seen can never be forgotten.

An interesting fact about the disease is its frequent, though by no means invariable, association with abdominal carcinoma. This has led to the idea that the whole train of symptoms is

caused by interference with the adrenals and the abdominal sympathetics.

No treatment is of any avail in curing the disease, but by scrupulous cleanliness and the use of mild antiseptic lotions and powders many of the distressing symptoms may be removed.

APPENDIX

ON THE PREPARATION OF SPECIMENS FOR MICROSCOPIC EXAMINATION

1. Fluids from Vesicles or Pus.

A DROP is taken up on a perfectly clean coverglass, and this should then be allowed to fall on another, so that the fluid spreads by capillarity into a thin film. The coverslips are then pulled apart, care being taken to avoid pressure in the act of doing so. They are then allowed to dry completely in air, and are fixed by passing three times rapidly through a flame. They should then be stained by dropping on them a few drops of borax methylene blue, and allowing it to act for about two minutes. The formula I use is methylene blue and borax, of each 1 gramme, distilled water 100 c.c. This forms the stock solution, and should be diluted about 1 in 10 parts of distilled water for use. After staining, the coverslips are well washed in water, blotted and dried in air, and then mounted. If preferred, the films may be made on clean slides by drawing the edge of one slide across the other. In the case of proposed treatment of any suppurative disease by the inoculation method it is important to make a stained preparation of the pus in order to determine what organisms are present. Mere cultivation may fail to reveal all the organisms, as some may not grow.

2. Scales and Comedo.

For suspected ringworm the scales may be simply treated with ordinary liquor potassæ, but plenty of time must be allowed for the caustic alkali to exert its solvent effect. Heating is, in my experience, risky, as it tends to destroy the fungus.

Scales, etc., may be rapidly stained in a manner quite sufficient to allow of successful clinical examination, though the

preparations would not be elegant enough to keep in all cases. The scales are placed on a slide, a drop of glacial acetic acid is added, and they are then ground up by rubbing a second slide on the top. The scales dissociate rapidly, and on sliding the two slides apart some stick to each. The slides are then dried by passing each several times through the flame until no smell of acetic acid can be detected. They are then washed with a little acetone or ether, and stained with the methylene blue given above. If the preparations are very thick, a little longer time must be allowed for the stain to penetrate, and the preparation may be washed once very rapidly through methylated spirit in order to remove excess of stain before washing with water.

3. Hairs, Scrapings of Nails, etc.

These may be examined for ringworm by the potash method, and if time be given for the solution to act in the cold I believe that the most perfect specimens are to be obtained in this manner, but they cannot be made permanent. The staining of hairs and nail fragments is a rather long proceeding, but the method is given here in case it may be useful. The material should be placed in acetone for an hour or so in order to remove the grease thoroughly. Acetone is much better than other solvents for this purpose, on account of its power of mixing with both water and grease. The material should then be taken straight from the acetone and placed on a slide, and a little carbol fuchsin or anilin gentian violet poured over it. It is then gently heated from time to time, so that steam rises from it. After half an hour the stain is removed with blotting-paper, care being taken to replace on the slide any material which sticks to the paper. The subsequent treatment varies slightly according to whether fuchsin or gentian violet has been used as the stain. In the former case a few drops of anilin to which has been added a little strong hydrochloric acid (about 1 drop to the c.c.) are poured on to the slide, and clouds of stain will be instantly given off. The preparation should be rocked about and occasionally examined under the low power of the microscope to see whether decolorisation is sufficient. When this is the case, the specimen is washed for

about half an hour in anilin, and then for an hour in xylol to get rid of the anilin, after which it may be mounted in balsam. If gentian violet is used, it is best to use Gram's solution after the staining and before the treatment with anilin. In my experience carbol fuchsin gives the best results in most cases, but it does not stain the spores of microsporon furfur sufficiently strongly to resist decolorisation.

The time required for the total operation of staining with the methylene blue solution given at the beginning of this appendix is certainly not more than five minutes. I therefore very frequently make use of it in my consulting-room for the immediate diagnosis of different scaly conditions.

INDEX

Acanthosis, 2, 157
— nigricans, 281
Acarus scabiei, 44
Achorion Quinckeanum, 61
— Schoenleinii, 61
Acne rosacea, pathology, 130
— — symptoms, 129
— — treatment, 131
— scrofulosorum, 201
— varioliformis, 128
— vulgaris, symptoms, 122
— — treatment, 125
— X rays in, 128
Acnitis, 208
Actinomycosis, 241
Acute circumscribed œdema, 78
Adenoma sebaceum, 263
Agminate folliculitis, 53
Aleppo evil, 243
Alopecia areata, 271
Angiokeratoma, 264
Angioma, 256
Arsenic, eruption due to, 135

Baghdad boil, 243
Biskra boil, 243
Blastomycosis, 242
Bockhart's impetigo, 28
Boils, 32
Bottle bacillus, 73
Bowditch Island ringworm, 55
Bromide eruptions, 134
Bug-bites, 51
Bulla, definition, 8

Calvities, 276
Carbonic acid snow, general use of, 14
Carbuncle, 33
Carcinoma, basal cell, 250
— melanotic, 251
Cataphoresis, 15
Cheiropompholyx, 146
Chigoe disease, 50
Chilblain, pathology, 100
— symptoms, 99
— treatment, 100
Chronic pustular eczema, 29
— streptococcic infection of the epidermis, 23
Coal tar, crude, in eczema, 164
Copra itch, 49
Corbett's tintometer, 65
Corium, description, 1
Corymbose syphilide, 215
Creosote in the treatment of psoriasis, 177
Croton oil in the treatment of ringworm, 66
Crust, definition, 8
Cysticercus cellulosa, 50

Darier's disease, 280
Dartre volante, 150
Delhi boil, 243
Demodex impetigo, 22
Dermatitis, chronic pyogenic, 149
— exfoliativa, 170
— — neonatorum, 18
— herpetiformis, pathology, 113
— — symptoms, 112
— repens, 155
— seborrhœic, 151
— simple chronic, 147
Desquamating papule, 212
Drug eruptions, 134
Dysidrosis, 146

Ecthyma, 19
— térébrant, 19
Eczema, 144
— acute, symptoms, 144
— and asthma, 154
— and gout, 155
— bathing in, 165
— chronic, 147
— diagnosis, 158
— "discoid," 150
— etiology, 153
— "flexural," 152
— infantile, 168
— internal treatment, 165
— local treatment, 159
— marginatum, 53
— pathology, 156
— seborrhœic, 151
— soap in the causation of, 151
Eczematoid ringworm of the hands and feet, 54
Enesol, 177
Epidermis, 2
Epidermolysis bullosa, 115
Epidermophytosis inguinalis, 53
Epithelioma, benign cystic, 250
— squamous, 250
Erosion, definition, 8
Erysipelas, anatomy, 25
— diagnosis, 26
— symptoms, 25
— treatment, 26
Erythema ab igne, 89
— annulatum, 93
— bullosum, 94
— exsudativum multiforme, diagnosis, 97
— — — symptoms, 93
— — — treatment, 98
— gyratum, 93
— induratum, 202
— intertrigo, 90
— iris, 94
— leve, 89
— marginatum, 93
— morbilliforme, 90
— multiforme and rheumatism, 95
— nodosum, 96
— nodulatum, 93
Erythema paratrimma, 90
— pernio, 99
— pudicitiæ, 90
— scarlatiniforme, 90
— — recidivans, 92
— solare, 89
Erythrasma, 72
Excoriation, definition, 8

Farcy, 240
Favus, 60
— of the nails, 62
— symptoms, 61
— treatment, 62
Feigned eruptions, 142
Fibroma, 254
Finsen's light, 196
Flea-bites, 50
Folliclis, 208
Follicular impetigo, symptoms, 28
— — treatment, 29
Frambœsia, 239
Frambœsiform syphilide, 216

Glanders, 240
Grain itch, 49
Granuloma trichophyticum, 53

Hair follicle, 3
Harvest bug, 51
Hemiatrophia facialis, 269
Henle's layer, 4
Henoch's purpura, 103
Herpes catarrhalis, 116
— gestationis, 112
— iris, 94
— zoster, 117
Hidrocystoma, 250
Huxley's layer, 4
Hydroa gravidarum, 113
— vacciniforme, 115
Hyperidrosis, 120
— X rays in, 122
Hypertrichosis, 277

Ichthyosis, 265
Idiosyncrasy, 137
Impetigo contagiosa, anatomy, 20
— — diagnosis, 20

Impetigo contagiosa, symptoms, 17
— — treatment, 21
Iodide eruptions, 134

Kaposi's ointment, 48
Keloid, 255
Keratoma palmare et plantare, 267
Keratosis follicularis, 280

Leishmaniasis, 243
Leprosy, 237
— symptoms, 238
— treatment, 239
Leptus autumnalis, 51
Leucodermia, 267
— syphilitic, 216
Lichenification, 37
Lichen obtusus corneus, 184
— planus, anatomy, 186
— — bullæ in, 184
— — diagnosis, 186
— — etiology, 185
— — lumbar puncture in, 188
— — symptoms, 183
— — treatment, 187
— — verrucosus, 184
— scrofulosorum, 201
— simplex, 163
— spinulosus, 189
— urticatus, diagnosis, 84
— — symptoms, 82
— — treatment, 85
Liquid air, general use of, 14
Lupus erythematosus, 204
— vulgaris, anatomy, 193
— — diagnosis, 194
— — etiology, 192
— — symptoms, 190
— — treatment, 195
Lymphangioma circumscriptum, 258
Lymphangitis, chronic and relapsing, symptoms, 27
— — — treatment, 27
Lymphodermia perniciosa, 263

Macule, definition, 7
Madura foot, 241
Mange, infection from, 49
Microsporon furfur, 70
Moles, 249
Molluscum contagiosum, 246
Monilithrix, 275
Morphæa, 269
Mycetoma, 241
Mycosis fungoides, 261
Myiasis, 50
Myoma, 256

Nævo-carcinoma, 251
Nævus, treatment, 257
Nail, description, 5
Nails, favus of, 62
— ringworm of, 60
Neurofibromatosis, 254
Nodule, definition, 8

Onychomycosis trichophytina, 60
Oriental sore, 243

Paget's disease of the skin, 252
Papule, definition, 7
Parakeratosis, 157
— variegata, 189
Pars papillaris, 1
— reticularis, 1
Pediculoides ventricosus, 49
Pediculosis capitis, 39
— — treatment, 40
— corporis, 41
— pubis, 43
Pemphigus, 107
— acutus malignus, 107
— contagiosus tropicus, 19
— foliaceus, 109
— neonatorum, 18
— treatment, 111
— vegetans, 110
— vulgaris, 108
Perlèche, 150
Pinta, 76
Pityriasis alba, 72
— capitis, treatment, 74
— rosea, 180
— rubra, 170
— — pilaris, 179
— versicolor, 70
"Port-wine" stain, 256
Prurigo (Hebra), 87

Pseudo-alopecia areata, 275
Psoriasis, creosote in the treatment of, 277
— diagnosis, 175
— pathology, 174
— symptoms, 172
— treatment, 176
Pulex penetrans, 50
Purpura, 102
— Henoch's, 103
— pathology, 104
— Schönlein's, 102
— treatment, 105
— Werlhof's, 103
Pustule, definition, 8

Rete Malpighii, 3
Rhinophyma, 130
Ringworm, 55
— croton oil treatment, 66
— fungus in the hair, description of, 59
— of the beard, 58
— of the nails, 60
— — treatment, 70
— of the scalp, 56
— symptoms, 52
— treatment, 62
— X rays in, 64
Ritter's disease, 18
Rodent ulcer, 250
Rupia, 217

Sabouraud's pastilles, 64
Salvarsan, excretion of, 231
Scabies, diagnosis, 45
— symptoms, 44
— treatment, 46
Scale, definition, 8
Scar, definition, 8
Schönlein's purpura, 102
Sclerema neonatorum, 270
Sclerodermia, 268
Scratching, results of, 37
Scrofulodermia, 200
"Scrum-pox," 19
Scutulum, 61
Sebaceous glands, 4
Seborrhœa, 119
Seborrhœides, 151
Skin, absorption by the, 6
— excretion by the, 6
Spirochæta pallida, 223
Spongiosis, 157
Staphylococcic inoculation in boils, 34
Stratum corneum, 3
— cylindricum, 2
— granulosum, 3
— mucosum, 3
— spinosum, 2
Streptococcus, diseases caused by, 17
Strophulus, 82
Susceptibility, 136
Sweat gland, 4
Sycosis, 30
— treatment, 35
Syphilis, anatomy, 237
— clinical diagnosis, 221
— congenital, 219
— detection of Spirochæta pallida, 223
— eruptions of, 213
— primary, 211
— treatment, 230
— Wassermann reaction in, 224
Syphilitic leucodermia, 216

Tar cancer, 139
— eruptions, 139
Tartar emetic in Leishmaniasis, 244
Tinea circinata, 52
— imbricata, 55
Traumatic dermatitis, 136
Tricho-epithelioma, 250
Tubercular gumma, 201
— ulcer, acute miliary, 200
Tuberculides, 200
Tuberculosis, 190
— verrucosa cutis, 199
Tylosis palmaris et plantaris, 267
Tyroglyphus longior, 49

Ulcer, definition of, 8
Unna's paste, 163
Uræmic rashes, 106
Urticaria, diagnosis, 79
— etiology, 79
— papulosa, 82
— pathology, 80
— pigmentosa, 86

Urticaria, symptoms, 77
— treatment, 80
— vesiculosa et bullosa, 78

Varicella prurigo, 83
Verruca, 245
Vesicle, definition, 8
Von Recklinghausen's disease, 254

Wassermann reaction, 224
Water, effect of, in loss of horny layer, 12
Werlhof's purpura, 103
Wheal, definition of, 8

Xanthoma, 259
— diabeticorum, 259
Xerodermia pigmentosa, 280
X-ray dermatitis, 141
— — treatment of, 141
X rays, general use of, 13
— in lupus, 198
— in psoriasis, 179
— in sycosis, 36

Yaws, 239
Yeast in the treatment of boils, 34

Zinc cream, 161

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